REPORT

ON THE

RAILWAY FAMINE-TRAFFIC

IN

THE PRESIDENCIES OF MADRAS AND BOMBAY AND THE PROVINCE OF MAISUR,

OF

HER IMPERIAL MAJESTY'S INDIAN EMPIRE,

IN

1876–78.

COMPILED UNDER THE ORDERS OF THE SUPREME GOVERNMENT OF INDIA, FOR THE INFORMATION OF THE RIGHT HONOURABLE THE SECRETARY OF STATE FOR INDIA,

BY

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REFERENCES.

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Letter No. 36, of the 4th March 1878, from the Government of India, to the Secretary of State for India.

Letter No. 3003R., of the 20th July 1878, from the Government of India, to the Consulting Engineer, Calcutta.

Letter No. 2235, of the 5th August 1878, from the Consulting Engineer to the Government of India, forwarding letter No. of the 5th August 1878, from Captain H. Wilberforce Clarke, R.E., Officiating Deputy Consulting Engineer.

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The Revenue Accounts	For the Chief Railways in India.
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The Returns of Passenger and Goods Traffic from station to station...	
Weekly Returns of Food-grain Traffic from July 1876 to October 1877	

The Nineteenth Century Review for July, August, September, and October 1879.—"Notes by the Way in India, the Land and the People": by James Caird, C.B., F.R.S.

The Medical Gazette of India for November and December 1879, and January 1880.

[On the 17th October 1879, at the General Post Office, Calcutta, these letters and papers, from which the Report is compiled, were weighed and found to be 83¾ lbs.]

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1. In its letter No. 1650-4R., of the 29th May 1877, to the Consulting Engineer, the Government of India stated :—

It is the desire of the Governor General in Council that a comprehensive .review of the traffic of all the Railway lines for the period during which scarcity has prevailed in Western and Southern India shall be prepared and sent to Her Majesty's Government.

In its letter No. 3003R., of the 20th July 1878, to the Consulting Engineer, the Government of India stated :—

As there are no officers in the Secretariat (at Simla) who can be spared for this duty (of preparing a comprehensive review of the traffic of all Indian Railways during the recent famine, for submission to the Secretary of State) at present, I am directed to inquire whether you could let Captain Wilberforce Clarke, R.E. (at Calcutta) take up the work in addition to his ordinary duties.

In my letter of the 5th August 1878, forwarded with letter No. 2235, of the same date, from the Consulting Engineer, I replied :—

I have the honor to acknowledge the receipt of letter No. 3003R., of the 20th July 1878, from the Government of India, asking that [in addition to my duties as a Deputy Consulting Engineer] I should undertake to prepare a comprehensive review of the traffic of all Indian Railways during the recent famine in Western and Southern India.

2. I would gladly do all that is possible to meet the wishes of the Government of India, but in this case, in consequence of exhaustion produced by increasing work without leave during a period of 5½ years, I regret to say I feel myself unable to cope with a task of such a magnitude in addition to my duties. * * * Either I should break down altogether, or fail to produce a review satisfactory to myself or to the Government of India.

By request, early in January 1879, at Calcutta, I had an interview with General Trevor, R.E., Under Secretary to the Government of India, Railway Department, and also with Major Filgate, R.E., Deputy Accountant General; and on the 10th January 1879, such papers as the Government of India possessed were handed personally to me for the purpose of compiling—

A comprehensive report on the railway famine traffic in the whole of India,—in spare moments in leisure time, out of office hours.

2. The compiling of the review has been hindered; thus :—

a. In its letter No. 776R. of the 10th February 1879, the Government of India directed me—

> "to prepare and submit a report[1] on the proposals for carrying elephants by railway in ordinary cattle trucks."

b. From the 5th June 1879 to 6th September 1879, I was absent on privilege leave for three months, my first leave during a period of 6 3/12 years.[2]

c. A few days after my rejoining, the Officiating Consulting Engineer unhappily caught a bad fever. To restore his health he went by sea from Calcutta to Bombay and back, and his valuable services were lost to the office. During a period of three months (from the 9th September to the 6th December 1879, when Colonel F. S. Taylor, R.E., Consulting Engineer, arrived from England,) in addition to the duties of my own office of Deputy Consulting Engineer, there devolved on me (in a great measure) those of the Consulting Engineer.

d. In its letter No. 3956R. of 19th September 1879, the Government of India directed me to sit as President of a Committee to classify the surplus stores of the East Indian Railway into serviceable and unserviceable; and to make, in concert with the officials of the East Indian Railway Company, an inventory and valuation of the undertaking.

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[1] The report, comprising fifty printed pages, consisting of three parts,—
A note dated 3rd April 1879 on Elephants,
" report " 16th " " the transporting of Elephants,
" note " 2nd December " Elephants,
elicited the thanks of the Government of India.

[2] In the *Westminster Review*, 1st July 1879, page 39, in an article on free trade, we have :—
"The fact is, people in other countries are realizing that there is a limit to the amount of work a man can regularly do, and they are learning that it is very questionable whether, in the long run, as much can be got out of a man in seventy hours per week as in sixty."

The Committee began to sit on the 15th December 1879 and dissolved on the 23rd January 1880. It travelled during that time over the whole of the East Indian Railway.

It will be seen that, for executing a work of difficulty and magnitude such as that of making—

A comprehensive report on the railway famine traffic in the whole of India,

but little leisure was afforded.

Further, the papers were altogether incomplete,[1] and it became necessary at once to telegraph and to write to the various Railway Administrations for information. This was a long process. The information supplied tardily and often incomplete was, in some cases, supplied too late to be of any use.

There was difficulty in getting a narrative of the famine to supplement the array of figures tabulated at the end of this report.

The Administration Report of Madras, 1877-78, page 9, says:—

The operations of the special Famine Department will be noticed in detail in the special Famine Report *about to be issued by the Government.*

Application was early made for this, but it has not yet been received.

The Administration Report of Bombay, 1876-77, page 1, says:—

"As a special detailed account of its (the Famine's) progress and of the steps taken by Government to relieve the destitute is under preparation, all but incidental references are omitted."

The detailed report, received on the 28th November 1879, is meagre in the extreme, consisting of twenty-one pages of undigested memoranda.

3. Diagrams have not been framed, for the following reasons:—

a.—Tables have necessarily to be made before the diagrams can be drawn.

c.—If any complexity be introduced—such as showing "goods traffic, up and down, at stations"—the diagrams become so complicated as to be more troublesome to the mind than tables.

d.—The drawing of diagrams involves (after the tables have been made) a great deal of nice mechanical drawing, the spacing of the horizontal and vertical lines, and the fixing of the scales for ton mileage, passenger mileage and traffic train mileage—have to be done afresh for *each* Railway for *each* period of time considered. For their preparing, a drawing office, with a proper staff of draftsmen is required.

e.—In the ordinary way, if the scale chosen be one on which the ton mileage, &c., of a line such as the Eastern Bengal Railway, 150 miles can properly be shown, it is a scale utterly unfit to present the ton mileage, &c., of the East Indian Railway, 1,600 miles long.

f.—The expense, in time and money, of preparing, drawing and printing diagrams seem to be prohibitory.

In its circular No. 36 R., of 18th October 1874, the Government of India said:—

Diagrams[2] of weekly goods ton mileage, pessenger and mixed train-mileage, goods train mileage, passenger mileage, are to be prepared for all State Railways and submitted to the

---

[1] Such were the manuscript papers that the Accountant General asked me more than once: "Do you think you can make anything out of them?"

The station to station (or Diagonal) Traffic Returns being different in the case of each Railway, the labour of mastering the form of recording traffic had many times to be undergone.

This remark applies in a measure to some of the other forms.

See Railway Conference of 1880, sitting No. 7, Resolution No. 41.

[2] **To frame a diagram showing weekly:—**

The down goods ton-mileage.
" up " "
" total " "
" total goods train—mileage.

The down passenger-mileage.
" up " "
" total passenger and mixed train-mileage.

For the sake of example, take the Rajputana State Railway for the week ending 7th June 1879; the length of the line is 485 miles.

1 Passenger ... ... }
1 Mixed train ... ... } runs each way daily.

Then the passenger and mixed train-mileage per week—
= 428·5 miles + 4 trains × 7 days.
= 11,998.

This number is taken as the average passenger and mixed train-mileage per week throughout the half-year ending June 1879.

To find the up and down passenger miles:—

The up passenger miles for the week ending 7th June 1879—
= number of passengers in each class × average distance travelled.
= (15 + 2) first class × 55·75 miles + (85 + 7) second class × 46·45 miles + (13,934 + 12) third class × 49 72 miles.
= 698,616*

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* See printed statement of Traffic for the week ending 7th June 1879, Rajputana State Railway.

Government of India within one month of the close of the period to which they relate. The scales should be so arranged that with average train loads (ascertained from the corresponding period of the previous year) the total train-mileage and paying work done will agree.

In the footnote is concisely shown the great labour involved in preparing the scales, &c. (even before the drawing of the diagram is begun) in the case of a single Railway for a single period of time.

The toil and trouble that would have to be incurred if all the Railways of India for many periods of time were considered, may be imagined.

4. The Table of Contents shows that this Report embraces the following subjects :—

1. Summary Report of the Famine in the Presidency of Bombay.
2. „ „ „ „ Madras (with annexures).
3. Famine in the Province of Maisur.
4. The Maisur Famine Code.
5. The Relief Fund, Madras.
6. The Preservation of life during Famine.
7. Suspensions and remissions of land revenue.
8. The subsistence ration in times of famine.
9. Reports on the working of Railways of India, by officers of the Railway Department.
10. Notes in India, by Mr. Caird, C.B., M.P., Famine Commissioner.
11. Statistical Tables of the working of the Railways of India.

It may appear that some of these subjects have naught to do with a report dealing with the working of the Railways in India in times of famine. It will be my duty to show that this idea is a superficial one.

The down passenger miles for the week ending 7th June 1879
= 32 first class × 55·75 miles + (131 + 3) second class × 46·45 miles + 15302 third class × 49·72 miles
= 768823.
Then the total up and down passenger-miles.
= 1,467,439.

To find the up and down goods ton-miles :

The up goods ton-miles for the week ending 7th June 1879

$$= \frac{\text{Maunds of each class of goods}}{27\tfrac{1}{2}} \times \text{average distance carried.}$$

$= \frac{1}{27\frac{1}{2}}$ [(8663 + 26,898) first class × 136·42 miles + (1,398 + 325 + 141) second class × 164·04 miles, + (303 + 251) third class × 153·38 miles + (13,298 + 5,465) special class × 129·49 miles.]
= 281,660.*

The down goods ton-miles.

$= \frac{1}{27\frac{1}{2}}$ [(11,875 + 31,989) first class × 136·42 miles + (197 + 170 + 43) second class × 164·04 miles, + (284 + 42) third class × 153·38 miles + (19,119 + 21,431) special class × 129·49 miles.]
= 416,579.

Hence the up and down goods ton-miles for the week ending 7th June 1879
= 698,239.

To ascertain the proportion existing between the scales for :—

Ton / Passenger / Train } Mileage :

Suppose the period to be considered is the half-year ending December 1879.
We have from the Review of the Revenue Accounts for the half-year ending December 1878.

a. Table M—1.
42,396,289 = gross goods ton mileage, exclusive of engines, tenders, and brake-vans.
20,063,737 = freight ton-mileage (under the column " of freight").

Then the ratio of—

$$\frac{\text{42,396,289 gross ton-mileage}}{\text{20,063,737 freight ton-mileage}} = \frac{\text{2·1 gross tons.}}{\text{1 freight ton.}}$$

$$\text{or } \frac{\text{20,063,737 freight ton-mileage}}{\text{42,396,289 gross ton-mileage}} = \frac{0·47.}{1}$$

From the same table :—
85,464,089 = total passenger, or unit mileage (under the column of "total mileage of units")
14,421,185 = total passenger ton mileage, exclusive of engines, tenders and brake-vans.

Then the ratio of—

$$\frac{\text{35,464,089 total passenger mileage}}{\text{14,421,185 total passenger ton-mileage}} = \frac{\text{2·4 passenger.}}{\text{1 ton.}}$$

Then the number of passengers equal to one freight ton of goods
= 2·1 gross tons for every single freight ton — 2·4 passengers going to the gross ton.
= 5·04.

Hence the scale for the ton-mileage
= 5·04 times the scale for passenger-mileage.

b. From table A., Column 54.
The traffic train-mileage
= 517,396.
Then the proportion between the scale for train-mileage and that for ton-mileage.

$$= \frac{\dfrac{\text{35,464,089 passenger mileage}}{\text{5.04 passengers to one gross ton}} + \text{20,063,737 freight ton-mileage.}}{\text{517,396 traffic train miles}}$$

$= \frac{1}{52}$.

Hence the scale for traffic train-mileage
= 52 times the scale for ton-mileage.

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* See printed statement of Traffic for the week ending 7th June 1879, Rajputana State Railway.
The maunds are converted into tons by dividing by 27½.

With respect to Nos. 1, 2, 3 and 4, it can hardly be denied that no set of statistical tables can of themselves give any idea of the intensity, the locality, and the duration of a famine. For a true appreciation of the working of Railways in times of pressure, naration is required.

With respect to Nos. 6 and 8, it is only necessary to read—

> The reports on the working of the Railways, by officers of the Railway Department employed on operations connected with the famine,

to see that the Railways, as organised, carried, with great difficulty, rations into Bombay, Madras and Maisur, at the rate of 1 lb. per man per diem.

The Government of Bombay has stated :—

> Although the Railway lines have failed to do all required of them, they have largely contributed to save Southern India from a great calamity; but they have not done this with any margin to spare, or with injury to trade or traders.

His Excellency the Viceroy, in his minute of the 12th August 1877, says :—

> Para. 24. The amount of grain carried daily into Southern India will have to be greatly increased. The quantity required per diem for the Madras, Maisur and Haidarabad Districts is 4,500 tons, whereas, during the past season, 2,500 tons only per diem have been carried.

This is sufficient to show that the question of the subsistence ration enters deeply into that of Railway Famine Traffic.

If with a subsistence ration of 1 lb. it was well nigh impossible (even with the aid of sea transport) to pour the required rations into the distressed districts, how much more difficult would it be were it shown that the subsistence ration should be more than 1 lb. per man per diem.[1]

A development of the present Railway system as regards rolling-stock, extensions, doubling of lines, and crossing-stations would certainly have to be considered.

From the point of view of a Railway Administrator, it is necessary to know what ideas are held as to—

> The saving of life ... ... } in times of famine.
> The subsistence ration ... ... }

With respect to No. 7, by learning what the risks of losses of land revenue are from the depopulating of the country through famine, one can, setting

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[1] The Chief Commissioner of Maisur, in his letter No. 5, of the 11th September 1877 (page 92), directed :—
When *millet* (ragi) is not procurable, the same quantity of *rice* is to be given.
In his Report on the Maisur Famine (page 71 of this Report), Mr. Elliot says :—
The rice was dirty; from 3 to 5 per cent. was lost by sifting. The loss in sifting ragi varied between 10 and 20 per cent.

Dr. Lyon says :—
A margin of ten per cent. over what theory requires is necessary in this famine-ration (page 149).
A native of India, 105 lbs. in weight, performing 115 foot tons per diem (famine-task of the Public Works Department, or 54·75 per cent. of a day's average work), requires, theoretically, 21·4 oz. of *pulse-cereal*, plus 10 per cent. as a *safety-margin* (page 147).

a.—Let neither fat nor pulse be given; and let the cereal be rice.

Compensation for :—
No pulse being given = 21·4 oz. × 0·8 = 17·12 oz.
" fat " $= \frac{21{\cdot}4 \text{ " } \times \frac{1}{12}}{2} \times 2 =$ 1·8 "

Total compensation in rice for want of pulse and of fat = 18·92 "

Hence the total ration of *rice* equal to 21·4 ounces of *pulse-cereal*
= (18·92 + 21·4) = 40·3 ounces + 5 per cent. for dirt + 10 per cent. for safety-margin.

b.—Let the proper proportion 4½ oz. of pulse and $\frac{\frac{1}{12} \times 21{\cdot}4}{2}$ oz. of fat be given.

The quantity of fat $= \frac{\frac{1}{12} \times 21{\cdot}4 \text{ oz.}}{2}$ = 0·89 ounces.
" " *pulse-cereal* = $\frac{11}{12}$ × 21·4 oz. = 19·6 "
If " " cereal (rice) = 19·6 — 4·5 = 15·1 "
The total quantity of *rice* allowing for compensation
$= \left\{ 15{\cdot}1 + \overline{19{\cdot}6 - 15{\cdot}0} \times 0{\cdot}8 \right\} = 18{\cdot}78$ ounces.
Hence the total ration is—
= 18·7 oz. of rice + 5 per cent. for dirt + 10 per cent. for safety-margin, and 4½ oz. pulse, and 0·89 oz. fat.

c.—Let neither fat nor pulse be given; and let the cereal be ragi.

Compensation for :—
No pulse being given = 21·4 oz. × 0·4 = 8·56 ounces.
" fat " " $= \frac{21{\cdot}4 + \frac{1}{12}}{2} \times 2 =$ 1·8 "

Total compensation in ragi for want of pulse and of fat = 10·36 "
Hence the total ration of ragi.
= (21·4 + 10·36) = 31·7 ounces of ragi + 20 per cent. for dirt + 10 per cent. for safety.
See pages 147 and 149 of this Report.

humanity altogether aside, calculate whether it is better to lose the peasantry, and hence the revenue, than to make canals and railroads for the preventing or the mitigating of the effects of drought and famine. With this is associated that under No. 5.

Famine of 1876—78.	Population.		Net cost, in rupees.	Duration of the Famine.	
	Affected.	Ratio to each other.		Date.	Years.
In the Presidency of Bombay[1] ...	7,963,927	2·6	1,18,50,000	Aug. 1876 to Nov. 1877	1¼
" " Madras ...	19,377,132	5·2	?	Oct. 1876 to Oct. 1878	2
" Province of Maisur ...	3,857,486	1·0	90,00,000	Oct. 1876 to Dec. 1877	1¼

In Madras, not only was the number affected by famine greater than it was elsewhere, but the period during which the famine lasted was also longer. Assuming that the expenditure in Madras was only equal to that in Bombay, we have a sum total of 32,700,000 rupees—an expenditure far below the truth, which is known to the Finance Department alone. For this sum, 363 miles of Railway, metre-gauge, at Rs. 90,000 per mile could be constructed.[2]

The loss consists notonly of present loss, but of diminished revenue (the country being depopulated and impoverished) in future years.

With respect to No. 9, nothing need be said. The reports on the working of the Railways, by special officers of the Railway Department, ought to be of value.

With respect to No. 10, the observations of a man of Mr. Caird's wide experience—a member of Parliament, a Famine Commissioner, holding no office, independent, an expert in political economy—must be of the greatest value.

With respect to No. 11, it is my humble hope that my great toil in compiling these tables will be appreciated.

5. Every endeavour has been made to condense and to concentrate the information given; from this cause, though loth to do so, I have even tampered with the beautiful language used by His Excellency the Viceroy in his reports on the famine in Madras and Maisur. Elsewhere, I have ruthlessly cut and curtailed.

The ratio of $\frac{\text{the condensed abstract}}{\text{the original}} = \frac{1}{31}$ in the case of Sir Richard Temple's report of the 14th April 1877 $= \frac{1}{58}$ in the case of Mr. Elliot's report on the famine of Maisur $= \frac{1}{17}$ in the case of Dr. Lyon's memorandum on the subsistence-ration.

In the other cases, the ratios need not be given.

6. This report compiled at Calcutta, in spare moments, out of office hours, under great difficulties as to the gathering of information is (I will believe) happily concluded.

[1] The expenditure prior to December 1876 was met from Provincial and Local Funds, and is not herein included.

[2] Sir John Strachey, in his Financial Statement for 1880-81, published in the *Gazette of India*, 24th February 1880 says the actual expenditure on famine relief has been, or is estimated to be, in—

	£
1878-79	313,420
1879-80	99,000
1880-81	5,000
	417,420

The following is the estimated cost of metre-gauge Railways in India :—

	Rs.
The Central Bengal Railway, 241 miles	91,286 per mile.
The Dona and Mymensingh Railway, 128 miles	1,00,000 "
The Sonarpur Line, 28¾ miles	76,870 "

See *Calcutta Gazette*, 18th February 1880, page 124.

Exhausted by the heavy duties of office and by the effects of a tropical climate, I left my work—not to rest, but to elaborate work. Severely did I feel the toil; but the work prospered.

Sincerely do I trust that this my labour may meet with the approval of the Government of India.

H. WILBERFORCE CLARKE, *Captain, R.E.,*

Deputy Consulting Engineer to the Government of India for Guaranteed Railways.

CALCUTTA:

The 17th February 1880.

THE FAMINE IN THE BOMBAY PRESIDENCY.

August 1876 to November 1877.

1.—The previous season of 1875 had been an average one. The monsoon of 1876 opened at the usual time, but the fall of rain up to August 1876 was scanty. Uneasiness began to be felt as to the prospect of the season in the Dakan and the Southern Mahratta Country, but it was not until September that this ripened into serious apprehensions that great distress was impending, and that it would be necessary for Government to undertake the relief of a large number of the population, who, from the failure of the monsoon crops and the absence of agricultural operations for the rabi crops, would be without food and without the means of purchasing.

The danger began in the Khandish Collectorate, and the first work of relief was authorized on the 28th August 1876; but rain fell in the eastern part of the Collectorate in September, and the difficulty passed. In Sholapur, relief-work was authorized on the 4th of September, and from that time there was no relaxation, either there or in any of the Dakan and Southern Mahratta Districts, though distress, in Satara, Kaladgi, Belgaum, and Dharwar was mitigated by a fall of rain in October 1876.

As soon as it became apparent that there was a failure of the monsoon crops, and that there would be an absence of cold-weather crops, the price of food-grains rose, and on the 15th November 1876 the staple grains, jowari and bajri, were selling in the Southern Mahratta Country at 12 and 14 pounds per rupee. In Belgaum, Dharwar, and Kaladgi, not only were the nominal prices high, but grain could hardly be procured at all, and much of that offered was old and bad. The holders of local stocks refused to sell, except in small quantities—either waiting for higher prices, or husbanding their stores in anticipation of greater scarcity and of another year's drought. In December 1876, prices fell, the markets throughout the country were well stocked, and the quality of the grain was greatly improved. The prices were:—

	Lbs. per rupee.
Jowari (average)	21¼
Bajri	20½
Jowari (dearest in Kaladgi)	15¼
„ (cheapest in Nasik)	32

Owing to the continued drought, there was a want of forage throughout the eastern part of the Dakan and Southern Mahratta Country, which pressed hardly upon the cattle and their owners, many of whom left their villages, driving their cattle to distant pastures. The drought occasioned difficulty as to water-supply in some localities. The absence of forage and of water upon the lines of road, especially in the eastern districts, complicated transport, and rendered it, on a large scale, impracticable in parts of the country.

Of the districts affected, the area was 54,355 square miles, and the population 7,963,927; and of the most affected parts, the area 33,873 square miles, and the population 4,981,616. The population was almost entirely agricultural, with few large towns and no extensive manufactures; the land tenure is ryotwari; there are no landlords corresponding to the zamindars of Bengal.[1]

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[1] Mr. Digby says:—

"The region over which distress raged embraced an area of 34,183 square miles and a population of 5,000,000 The population was affected as follows:—

	Per cent.		Per cent.
Khandish	3·8	Sholapur	13·8
Nasik	10·3	Satara	15·2
Ahmadnagar	8·8	Kaladgi	21·2
Puna	23·5	Belgaum	12·3
Dharwar	13·0		

In Puna is a permanent political institution known as the Sarvajanik Sabha, or Public Association. This body has done very good service at different times to the general public, but none of its efforts were more deserving of respect than those made during the famine period.

The Sabha addressed the Government of Bombay on several occasions, and memorialised the Viceroy at Puna in September 1877 on the subject of the famine.

It described the famine as the most intense that had been known. None of the previously-reported famines of—

1792,	1818,	1845,
1803,	1824-25,	1855,
1804,	1830-33,	

were so general and so thorough.

Through its agents, it gave the Government of Bombay information of the ordinary and actual rainfall, of the grain-stores, of the acreage tilled, of the population, of the total number of cattle and of the number that died, of the price of grain, &c.

It said—

The total number of agricultural cattle is	4,500,000
The number of ploughs with two bullocks is	325,000
„ „ four „	150,000
„ carts	2,000,000

2.—Guided by the Bahar famine of 1874, it was anticipated that 20 per cent. of the population of the affected districts would be in receipt of State relief at the worst time of the year; on the 21st April 1877 the actual percentage was only 3·49 per cent., and, considering the intensity of the crop failure and the miserable condition of the country throughout the famine tracts, it is clear that the self-sustaining power of the people and the willingness of the richer persons to relieve their poorer neighbours were not sufficiently appreciated.

Among the people, there was little discontent or crime; and their temper and conduct were beyond all praise. They were quiet in their homes, docile and obedient on the works, and grateful for the efforts of the Government to assist them. In a passive and persistent manner they not infrequently endeavoured to resist the measures of Government, and to avail themselves of any advantage that the character of the relief offered would afford; but this was brought about not so much by the people as by persons who endeavoured to influence them to demur to the arrangements of the Government. Many of those induced to leave the works when the civil wages were reduced, did not desire to make any exertion on the works, or to go far from their own villages in search of relief; they suffered much distress; but the class who fell into the greatest straits were the emigrants who, leaving the villages in the eastern part of the Presidency, went in attendance on cattle to the grazing-grounds in the western range, Belgaum, Dharwar, and North Kanara.

These persons—though not without means, and though every effort was made to provide work, or relief, for them when absent from their homes—suffered from the effects of a climate to which they were unused. Those in Kanara and the Belgaum and Dharwar western districts, weakened by repeated attacks of the fever peculiar to this part of the Western Ghauts, became demoralized, not so much by want as by disease.

They evinced a great desire to return to their homes, and it was difficult to restrain a movement considered premature as long as agricultural operations in the east could not be resumed, and the cattle grazed. Orders were issued to provide the people with food on their return, and for regulating their journeys through the intervening districts, so that they might suffer as little distress as possible and might not be a burden on the population through which they passed.

The preservation of cattle for agricultural purposes was a subject of importance, and, although the Government could not import forage, they did all in their power by opening forest reserves for grazing, by granting free passages for cattle by rail from Sholapur to Puna, and by instructing the Collectors of the western districts to receive, and pass on to lands where there might be grain and water, all cattle sent to them from the eastern districts.

The long-continued drought affected the supply of water, and though no calamity was anticipated in a country like the Dakan and the Southern Mahratta Country, intersected by rivers all containing water in their beds, yet in many villages the difficulty of water-supply was severely felt.

Until the cattle re-assembled at the villages, and ploughing commenced, the losses of cattle could not be estimated; probably they are serious. There was no scarcity of cattle for transport and traffic purposes; the high rates of cart-hire that prevailed enabled cattle-owners to preserve their animals.

In September 1877 the season recovered itself, and was generally favourable, though in Khandish, and the districts nearest, the rain was insufficient, and in the southern part of the Dakan and of the Mahratta Country excessive.

Hence it is absolutely necessary to maintain—
Ploughs ... }
Cart-bullocks... } 2,000,000
if famine is not to be perpetuated during the next four or five years.

The following table gives the deaths :—

Districts.	Deaths.	
	1st January to 30th September 1877.	Year 1876.
Khandesh	21,432	15,828
Nasik	19,511	11,955
Ahmadnagar	22,819	13,571
Puna	23,225	15,225
Sholapur	24,015	10,845
Satara	39,418	18,065
Belgaum	55,618	17,427
Kaladgi	55,409	12,255
Dharwar	61,339	19,303
	322,789	134,474

In this table, the mortality during the nine months ending September 1877 is only 3·9 per cent. In ordinary times, the annual ratio taken from the sanitary records is 3·5 per cent.

Mr. Gibbs, of the Council of the Government of Bombay, not being satisfied with these figures, prepared tables by which he showed that the deaths in the first nine months in 1877 = 2½ those of the same period in 1876.

To compare 322,789 with 134,474, which is below the truth, is useless.

The prices of food-grains continued their gradual rise from 28th April 1877; in July, when a second season of drought was expected, the rise became more rapid. No fall took place till September 1877: thenceforward the fall was steady, and in December 1877 the rate was 30 pounds per rupee, the average being 56 pounds.

	District.		Pounds per rupee.	
			Jowar.	Bajri.
November 1876	Kaladgi	...	12	14
March 1877	Khandish	...	36½	...
January „	„	...	...	29
August „	Belgaum	...	8½	...
	Dharwar	...	8½	...
September „	Kaladgi	...	8½	...

The total number of persons upon Government relief on the 21st April 1877 was 3·49 per cent. of the whole population of the distressed districts; in the second week of June, 7·1 of the whole population, or 10 per cent. of the affected population; then, it fell rapidly. In August it began to rise again, but, though the increase under gratuitous relief was large, it never reached the height attained in June. From the beginning of September, though the poor did not diminish, the reduction in the number of labourers reduced the total number, and after the middle of the month the reduction became general. The last labourers were discharged at the end of November 1877, and the relief-houses gradually closed.

The special relaxation of the general orders regarding work and wages made with respect to the immigrants into the Konkan and Kaladgi and Dharwar continued till the end of May 1877, when it was considered that they should, before the monsoon, proceed towards their homes. Special facilities were afforded—each head of a family, or single individual, requiring assistance, being granted a pass enabling him to obtain provisions at fixed places on his route.

Wanderers from the distressed districts made their way in numbers to Bombay. In April 1877 Government undertook to grant to such of them as required it, a free passage and subsistence batta to enable them to reach certain relief-works; but in August it was thought advisable to stop the immigration of famine-stricken persons into Bombay, and camps were formed for their detention at the Sion Causeway at the Port of Panwel, and afterwards at Tanna. There they were detained, fed, treated medically, and thence sent at the expense of Government to works or to their homes, according to circumstances.

3.—As soon as it became apparent that, owing to the rise of the price of food-grains, and to the action of the local holders and dealers, large importation would be necessary, the Government considered what course they should take—whether they should follow the precedent of the Bengal Famine of 1874, and themselves import grain, or whether the importations should be left to private traders. It was determined that Government might leave it to the trade to do what was needed; and although urged to depart from this policy, they adhered to it with satisfactory results.

The Government considered that any movement on their part would be likely to act prejudicially on the trade; that if the merchants were subjected to the competition of the Government, they would withdraw; and that it could not hope to effect all that the trade could do. It was publicly made known that Government would not interfere with the grain trade unless forced by failure of supply, or by excessive extortion on the part of dealers.

Larger imports would have reached the famine districts if the Railways could have carried more; but, owing to insufficiency of engine-power, the railway officers, in spite of strenuous efforts, were unable to deal with the famine traffic in addition to the ordinary traffic; much grain from the North-Western and Central Provinces, and the Berars, &c., was delayed for want of haulage, and some diverted to other markets. Still, the supplies thrown into the affected parts were sufficient, and stocks accumulated.

The resources of the Great Indian Peninsula Railway were strained by the necessity for providing for the through grain traffic to the distressed districts of Madras; and the ability of

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[1] The allowance of a quarter of an anna per head per diem for children under seven years of age, whose parents were employed upon the Relief Works, was paid both by the Civil and Public Works Departments, so that, assuming 26 working days in the month, and grain selling at 16 lbs. the rupee, a family consisting of a husband, wife, and four children—two over and two under seven years—could earn Rs. 7-11-6 monthly on the former, and Rs. 9-12-0 on the atter :—

		Man.	Woman.	2 Children over 7 years.	2 Children under 7 years.		Rs. A. P.
Civil Agency . . .	Rs.	1½	1¼	1½	½ = 4¾ × 26 =		7 11 6
Public Works Agency . .	„	2	1½	2	½ = 6 × 26 =		9 12 0

This amount is not less than the earnings of some servants having as large a family to support.

the Railway to serve the famine tracts of the Bombay Presidency was *pro tanto* reduced. From the 1st January to 26th April 1877, a total quantity of 40,000 tons of grain passed through the Junction Station of Raichor from the Great Indian Peninsula to the Madras Line, and a larger quantity would have been transferred if the Madras Railway had been able to deal with it.

The facts of the famine traffic show that occasions may arise when, to feed a population, grain has to be carried over single lines of Railway for long distances, in quantities sufficient to strain the resources of the best-appointed lines on the standard 5½ feet gauge, and, as narrow-gauge lines would be less efficient, the unsuitability of the metre gauge for long lines of through communication cannot be put out of sight when thought is taken of the proper administration of a country liable to drought. Although the Railway lines—the East Indian, the Great Indian Peninsula, and the Madras Railway—have failed to do all required of them, or needful to meet the necessities of the case, they have largely contributed to save Southern India from a great calamity; but they have not done this with any margin to spare, or without injury to trade or to traders. The standard gauge lines have barely been able to satisfy essential demands; under similar circumstances narrow-gauge lines would have broken down. In the southern part of the Madras Presidency, inconvenience arose at a break of gauge.

As regards the grain transport by roads from Railway stations, and from the Coast ports, there was no difficulty, though, owing to the dearness of forage on the inland lines, the price of grain was enhanced.

On the roads leading from the Coast ports over the Western Ghâts, forage and water were sufficient, but on the more easterly communications very scarce. The Government, in December 1876, ordered grass to be cut, pressed, and laid down on the lines of grain-traffic, to be reserved for sale for that traffic, so that, late in the season, no impediment might exist to supplying, from the rail or from the Coast, some of the local markets, such as Indi, Bijapur, Kaladgi, Athni, &c., in the easterly districts.

The following table shows the imports of food-grains into the distressed districts:—

Tons of food-grain imported by trade into—	In 1876.			In 1877.											Total tons.
	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	
The Southern Mahratta Country .	7,675	19,228	17,312	13,459	16,075	16,798	21,399	28,657	4,491	857	15,204	3,319	525	1,138	
South-Eastern Line: Puna to Sholapur	11,683	30,014	25,498	15,471	12,477	13,760	14,451	12,594	20,348	20,484	21,506	16,256	8,720	1,867	
North-Eastern Line, Bhosawal to Nasik	4,447	4,776	3,606	1,615	2,632	3,234	4,720	1,221	2,014	1,524	8,043	2,519	4,637	1,725	
Total tons*	23,805	54,018	46,416	30,545	31,174	33,792	40,570	42,472	26,853	22,865	44,753	22,094	13,882	4,730	4,34,000

It was found necessary to arrange with the Great Indian Peninsula Railway Company that a certain amount of food-grain for the distressed districts should be carried on that Company's line, in preference to all other goods. It was calculated that, besides delivering 800 tons a day at the stations in the Bombay-Dakan, 900 tons could be delivered daily at Raichor for the Madras Presidency, and 300 tons at Shahabad for the Nizam's dominions. The Bombay Government undertook—provided there were no delays by accidents, and that the quantities specified were booked by dealers—that these amounts of grain should be carried daily for Madras and the Hydarabad district. This arrangement came into force on 1st August 1877. The deliveries during part of that month fell short of the specified quantities, and Government directed that, in order to fulfil the promises made to the Madras Government and to the Resident at Hydarabad, with the consent of the Railway Company's Officers, preference should be given to famine traffic to Raichor and Hydarabad, to the exclusion of general traffic, to such an extent as might be needed to secure carriage of the stipulated quantities. It was arranged that the railway should take not only the specified quantities, but also additional quantities to make up for the previous short deliveries. To do this, it was necessary that 350 wagons of grain should be passed daily over the Bhore Ghaut; this could only be done by transferring engines from the north-eastern to the south-eastern line of the railway. Still, it was found in August 1877 that the daily average number of wagons worked into Raichor had been under 90, instead of 145, and the daily average number worked on the Nizam's line little over 30, instead of 44. In September 1877, owing to the rise of prices in the North-West Provinces, the tide of famine traffic turned, and the restriction that grain only should be booked for stations in the famine district was removed. The preference given to grain booked for such stations was withdrawn in October 1877, as far as it related to grain for the Bombay-Dakan, and before the end of the month, as regards Raichor and Shahabad.

The amount expended in pressing and laying down grasses was Rs. 67,742, for which 4,673,456 pounds of fodder were purchased, pressed, and delivered. The realizations by sale of the fodder amounted to Rs. 10,704.

After the rains began, the use of cattle for the carriage of grain was supplemented by human labour. Numbers of persons were engaged both in carrying head-loads and in dragging laden carts. This resulted in setting free, for employment in agriculture, cattle which would otherwise have been engaged in bringing food for the people. As an encouragement, where

practicable without breach of engagements with toll-farmers, exemptions, from tolls were granted to persons so carrying grain; and instructions issued for their protection.

The expectations that the demand for food would produce the usual effect on the supply were justified; and the relief-works the Government began heightened this effect, and were useful not only directly in supporting persons employed upon them, but indirectly to the population, by causing money to circulate and by encouraging the supply through purchasers.

In October 1876, the Great Indian Peninsula Railway began to deliver large supplies of grain at their stations in the affected districts, and up to December 1876 conveyed 58,585 tons to these stations. The grain movement was extraordinary,—the Railway Company could not provide engines and rolling-stock for its conveyance, nor sidings for its own accommodation; the station and traffic staff had to be largely increased, and along parts of the line the accumulations became large. In December 1876, there was little diminution of the grain traffic; all the towns in the affected districts along the railway were over-stocked, and from them, as fast as carriage could be obtained, the grain passed into the interior. In one district only was it necessary for Government to take any active steps as regards grain imports. For this district, Kaladgi, from its remoteness, and from its containing few native merchants (the grain stocks being chiefly held by the Patals and Kulkarnis of the villages, and by the wealthy ryots, who manifested reluctance to sell on any terms,) it became necessary for Government to send grain gradually, not in large quantities, from Belgaum and from Sholapur. The result was to induce the dealers to do the same, and to cause the local holders to open their stores.

In December 1876, at the ports of the Southern Mahratta Country, the grain imports amounted to 36,812 tons. The roads leading from the ports to the interior, all of which cross the Western Ghats, were crowded with grain-carts, and the only limit to the movement was the carriage and the forage obtainable. From enquiries it was ascertained that any interference by Government with the transport arrangements, or, with the merchants in aiding them to obtain carriage, would increase the price of cart-hire, and that it was best to let matters alone. Government had under consideration questions connected with the transport (such as the cutting and storing of forage) which aided the transport without interfering with it.

The general policy of the Government as regards grain supplies was successful; and the Government have the gratification of knowing that this policy has received the approval of the Government of India, expressed in its letter No. 365, of the 25th of October 1876.

4.—In October 1876, the number of persons who might have to be relieved (for a period of eight months) in the three Dakan Districts—Puna, Ahmadnagar, and Sholapur—amounted to 220,000. Adding the number that would require relief in the other six affected districts, it was reckoned that between 400,000 and 500,000 per sons would require support during the period up to the next monsoon.

Assuming that the failure of crops had not been less serious in the Dakan and Southern Mahratta Country than it had been in Bengal in 1874, and that the proportions adopted on that occasion might have to be given at the worst season to one million of people, or to 20 per cent. of the population of the affected districts, an estimate was made of the outlay, amounting to £1,400,000. In September and October 1876 the Government endeavoured to meet the case by using the Provincial and Local Funds, and by anticipating the local resources of the ensuing year; but it became apparent that these efforts would not meet the case.

It was necessary to set on foot works on which large bodies of men could be concentrated, supplied with food, and properly organized. This view was in accordance with the ruling of the Government of India, in the 12th paragraph of the Resolution No. 1-59—71, dated 18th February 1875, where it is enjoined that "large works should be opened at once. small local works subsequently, as the necessity arises."

The Government proposed to the Government of India the commencement of the earthworks of the Railway between Dhond and Manmad; but the proposal was not approved. With this work fell also that portion of the Karwar and Bellary Railway which lies within the Dharwar Collectorate.

The Government of India, in its letter No. 365, of the 25th October 1876, said :—

It "had no desire to impose upon the Bombay Government any restrictions beyond those afforded by experience as recorded by the Government of India," and that it had "the fullest confidence that His Excellency the Governor in Council will exercise the discretion vested in him so as to prevent any loss of the lives of Her Majesty's subjects, without incurring any expenditure of public money in excess of the necessities of the case."

Believing that a discretionary power had been granted, the Government proceeded to draw out a programme of large operations, both Road and Irrigation Works,—the works being so disposed as to provide for each affected district; but when this programme was submitted to the Government of India, objections were taken by the President in Council to the proposed works. It was ordered that no work should be begun in the Irrigation Department costing more than Rs. 30,000, without the previous sanction of the Government of India; and that before any large work could be undertaken, it would be necessary to establish sometimes its necessity as a relief work, sometimes its general merits as an improvement.

A correspondence began, but the Government of Bombay were compelled to begin several of the works prohibited by the Government of India, feeling that when the subject had been considered their action would be approved, and that it would be seen that they could not have acted otherwise without incurring grave responsibility.

The prohibition by the President in Council against large works (Resolution of the 18th February 1875) embarrassed the Government, and necessitated the prosecution of small local works on which little supervision could be exercised, but great waste of public funds incurred.

Instead of employing starving people on large public works, where they could be looked after, they were provided with work at their own doors; the result was not only that they did little work, but that many more resorted to the relief works than would otherwise have come. Efforts were made to get the scattered works into better order; the scale of relief wages was adjusted in accordance with the prevailing cost of food, and it was hoped that the Government of India would accord their approval to the large works, and would see that the situation was one not admitting of any delay consequent on nice enquiry into the merits of works. One class of works objected to by the President in Council was that of tanks, other than those of small dimensions; yet there was no work so well suited as the excavation of tanks and the construction of embankments, to prevent a recurrence of drought. In December 1876 there were about 250,000 persons on relief works, daily increasing in number; as the operations advanced, it became more difficult to devise employment perfectly unobjectionable and moderately profitable.

In November 1876 the charge of relief in the famine districts was given to General Kennedy, Secretary to the Government of Bombay, Public Works Department, whose firmness, energy and readiness of resource were of value to the State. The Revenue Department, the foremost rank of Indian officialism, fell to the rear, and the Public Works Department came to the front.

Lord Lytton reached Bombay on the 20th December 1876, and approved of the carrying out of the large works already begun and the beginning of others desired; and also of charging the Department Public Works with the burden of relief administration.[1]

The Government determined upon the following principles :—

1.—That, large, concentracted, and useful works should be undertaken.
2.—That checks and tests should be applied, deterring persons from seeking relief note in real need, and preventing the abuse of public charity.

Although the first principle was asserted by the Government of Bombay on the 16th October 1876, it was not until the 9th February 1877 that they were possessed of unconditional authority.[2]

5.—The rates first fixed were 2 annas per diem for a man, 1½ anna for a woman, and 1 anna for a boy or girl capable of work. This scale was ordered in November 1876, and the payments were dependent on the price of staple food-grain by the application of a sliding scale, which provided that the money rate should vary with the price of food-grain, when prices rose over 16 lbs. per rupee, and that a man should always receive the price of 1 lb. of grain in addition to 1 anna.

Experience showed that these rates were too liberal, and the works "too attractive"; in December 1876 it was, therefore, ordered that the sliding scale should be applied when prices fell below 16 lbs. to 18 lbs. per rupee, and that the people should be paid the value of a pound of grain in addition to a money payment. No musters were taken on Sundays on the large works under the Public Works Department from the begining of the scarcity, and no pay was issued: in December 1876 a similar rule was enjoined on Civil Agency works.

On the 19th of January 1877 the rates of wages on the small Civil Agency works were reduced to 1½ anna for a man, 1¼ for a woman, and ¾ for a boy or girl, subject to the sliding scale. The Civil works are usually situated near to the homes of the people, and on them light tasks are exacted. The rates on both scales have since stood as follows :—

	Scale.		Remark (6 days in the week only).
	Public Works.	Civil Agency.	
	Anna.	Anna.	lb.
Man	1	½	Plus the value of 1 of grain.
Woman . . .	½	¼	" " 0 "
Child (over 7 years of age.)	½	¼	" " ½ "

[1] Colonel Sir Andrew Clarke, R.E., late Minister for Public Works, on the 16th January 1880, in a speech at Calcutta, at a corps dinner to which he was invited, said :—

"There has been one point on which I can look back with satisfaction on efforts crowned with success, and that is, in the recognition of the proper sphere of the Public Works Department in the mitigation of the effects of famines. India during the past few years has been suffering severely under this dread visitation, and, aided by Sir Michael Kennedy working on paralled lines in Bombay, as well as Colonel Sankey in Maisur and General Fraser in the North-West, my efforts at head-quarters to get the aid of the Public Works Department *brought to bear in the earlier stages, instead of when the difficulties had become well nigh insuperable*, have inaugurated a policy with regard to this subject, the beneficial fruits of which have now been recognized, and will be felt to all time, should the country have, as appears inevitable, to pass through similar calamities in the future."

[2] On the 26th January 1877, the Government of Bombay published a resolution, commenting on the action of the Government of India.

In consequence, the following papers were written :—

A Minute by Sir A. Arbuthnot, Member of Council, on the 1st February 1877.
A Despatch from the Government of India to the Secretary of State, on the 2nd February 1877.
A Minute by Sir H. Norman, Member of Council, on the 6th February 1877.
A Minute by the Viceroy on the 8th February 1877.
Vide Parliamentary Papers.

The sliding scale of payments in accordance with the prices of grain has the advantage of equalizing wages over all the affected districts, and thus of preventing under-payments in one district and over-payments in another.

A great object was to segregate and classify the work-people, and on the 21st November 1876 the people were classified :—

Class 1st,—The able-bodied men and women, who should be drafted to the works under the Public Works Department, where the supervision is of a strict character, and where the value of the work performed can be regulated.

Class 2nd,—The less capable, the older men and the women and children, who should be employed on the works under the Collectors, where the supervision, is less strictly maintained; the work done should be measured and its value calculated.

Class 3rd,—People incapable of travelling to work, and of ordinary labour, who should be employed on trifling works about their villages.

Class 4th,—The old, infirm, blind, and cripples, who have none to supply their needs, and to whom it is necessary to give alms.

Task-work was at the same time enjoined, and, as large works were organized, tasking became practicable and was carried out.

The test of distance was ordered in December 1876. When work was everywhere to be found, and at every village, the temptation to idlers and well-to-do persons to make a convenience of the State charity was great, and the relief organization scattered in every direction was not sufficient to put a stop to abuse.

It was found that a low rate of wages was not of itself a reliable test; persons would seek employment on almost any wage, provided that the works were not far distant, that they could return to their homes at night, and that they could perform as little labour as suited them.

The effectual tests combined with moderate wages were,—some trouble in seeking the works, and exertion when on them. The Government had foreseen the necessity for these checks, and their full force was felt as soon as they could be brought into operation on concentrated works.

As the rates of wages finally brought into force were low, and the tests of classification, task-work, and distance, applied with rigidity, it became necessary to provide for particular cases, so that the arrangements, devised in the interests of the public, might not press hardly on the suffering people.

The classification, if rigidly carried out, separated families, and threw an insuperable obstacle in the way of those seeking relief on the larger works: it was therefore ordered that when able-bodied persons were employed on works, their families and immediate dependents, though not able-bodied, should be received; and the arrangement worked satisfactorily, the stronger members of the family having endeavoured to make up for shortcomings of their weaker relatives.

Many of the relief labourers had large families of children; some of them were able to work, and all over the age of seven years capable of carrying a basketful of earth were mustered and paid on the works; but the younger children were found not only to exercise a great drain on the scanty earnings of the parents, but (if admitted to the works) to impede the movements of their elders. It was therefore determined that, as regards the children below the age of seven years, regular musters should be taken; that they should each receive a daily payment as subsistence allowance; that they should be kept near, but apart from, the works on which their parents were employed; and that they should be under the charge of a few elderly women, or of the village schoolmasters.

The arrangement regarding the payment of young children, made on the 26th of December 1876, worked with success, gave great satisfaction to the people, and added not materially to the cost of the relief operations.

That the subsistence wage has been found sufficient is due to the fact that the allowance to children was made from the first. It was feared that a man and his wife, with a family to support, could hardly sustain himself and his children on the amount he could earn on the works; but when the elder children received payment as labourers, and the younger a small subsistence allowance, the earnings of the family became considerable.

Special cases (such as nursing mothers) arising on the works were specially treated, and authority was given to local officers to take action. Provision for sick persons, and for their attendants, was ordered, and cases of transfer were met by subsistence batta.

The following table gives the total number of persons employed on relief works for each week until all relief works were closed the numbers rose to maxima in January, June, and August 1877: the highest maximum was in June, when,—for one week,—the average daily number of labourers upon relief works exceeded 400,000 :—

Period ending			Numbers		
Day.	Month.	Year.	On Civil Agency Works.	On Public Works.	Total.
18	November	1876	35,118	62,838	97,956
25	"	"	69,903	97,419	167,322
2	December	"	86,214	113,616	199,830
9	"	"	104,604	129,253	233,857
16	"	"	112,307	146,626	258,933
23	"	"	119,366	172,583	291,949
30	"	"	123,586	173,000	296,586
6	January	1877	123,829	185,250	309,079
13	"	"	140,361	196.025	336,386
20	"	"	134,975	204,464	339,439
27	"	"	105,014	181,835	286,849
3	February	"	83,147	186,626	269,773
10	"	"	64,815	183,880	248,695
17	"	"	49,020	178 066	227,086
24	"	"	41,628	185,930	227,558
3	March	"	38,336	175,003	213,339
10	"	"	31,091	193,776	224,867
17	"	"	20,637	194,514	215,156
24	"	"	25,728	212,460	238,188
7	April	"	27,081	242,324	269,405
14	"	"	31,229	262,680	291,909
21	"	"	29,007	248,290	277,297
28	"	"	30,578	264,564	295,142
5	May	"	26,419	291,456	317,875
12	"	"	30,734	321,802	352,536
19	"	"	32,940	335,545	368,485
26	"	"	33,749	340,709	374,458
2	June	"	37,804	355,686	393,490
9	"	"	40,507	362,033	402,540
16	"	"	40.012	324,277	364,289
23	"	"	33,294	295,120	328,414
30	"	"	27,959	271,005	298,964
7	July	"	24,856	256,972	281,828
14	"	"	22,096	243,025	265,126
21	"	"	22,351	232,048	254,399
28	"	"	23,917	224,475	248,492
4	August	"	20,322	243,228	263,550
11	"	"	27,476	245,585	267,056
18	"	"	23,621	239,423	263,044
25	"	"	34,718	258,796	293,514
1	September	"	27,711	260,898	288,609
8	"	"	24,064	226,334	250,398
15	"	"	22,993	189,773	212,766
22	"	"	22,619	168,207	690,826
29	"	"	24,855	140,157	665,062
6	October	"	21,659	96,113	667,772
13	"	"	18,445	77,679	96,624
20	"	"	14,388	55,517	69,905
27	"	"	10,109	43,881	53,990
3	November	"	7,776	36,183	43,959
10	"	"	5,147	23,210	28,357
17	"	"	2,310	15,642	17,952
24	"	"	1,090	11,886	12,976
30	"	"	795	9,570	10,365
	Total out of a population affected of 7,963,927	..	2,328,310	10,385,253	12,713,563

The three maxima are thus explained:—

(1) Up to January 1877 the numbers were too great for supervision, wages too liberal, and the works too attractive. After January, remedies were applied, by strengthening establishments, reducing wages, and by enforcing work.

(2) In June 1877 the Famine was at its height; but when the monsoon broke, the demand for Government assistance grew less.

(3) In August a second season of drought had commenced; but, at the end of the month, rain came and fear went.

6.—In May 1877 the price of the staple food-grain of Kaladgi became as dear as 13 pounds for a rupee, and it was found that the quantity that could be purchased for a child's allowance of a quarter of an anna was insufficient. Children in the Kaladgi district were then paid the value of a quarter of a pound of grain. In August, this concession was extended to the other distressed districts.

Civil Agency, rates were allowed to labourers upon works under the Public Works Department when work was interrupted by rain and full tasks could not be exacted.

Under Civil Agency, when works were interrupted by rain, each man was paid the money value of a pound of grain *plus* a quarter of an anna, each woman the value of a

pound of grain, and each child employed as a labourer the value of half a pound of grain *plus* the sixth part of an anna.

In July 1877 prices had so risen in Kaladgi that it was ruled that where the price of staple grain was dearer than nine pounds per rupee, wages should be paid for Sundays as well as for week days; or that an increment of sixteen per cent. should be made.

On the 10th August 1877 authority was given to pay the Sunday wage on works in any taluka where the staple food-grain was selling at a rate dearer than nine pounds per rupee. This rate was reached only in the Kaladgi, Belgaum, and Dharwar districts, and in one taluka of Sholapur.

7.—On works under the Public Works Department the task was fixed at 75 per cent., and under Civil Agency at 50 per cent., of the work required from a labourer on full wages in ordinary times; and these words, "the task that would be required from a labourer on full wages in ordinary time," meant the task that the *particular* labourer would be able to perform if he worked to the full extent of his ability.

Thus labourers were tasked, not according to a fixed common standard, but according to their individual capacity, and the tasks were not in proportion to the full capacity, but less by 25 or 50 per cent., according as the labourer was on a work under the Public Works Department, or on a work under Civil Agency: or "able-bodied or less capable."

But it became necessary, in order to allow the members of a family to work together, to employ other than able-bodied persons upon the large works under the Public Works Department, and to forego in many cases the exact task. Besides, able-bodied persons, through idleness or obstinacy, would sometimes not perform the allotted work. It was directed in August 1877 that, on works under the Public Works Department, able-bodied labourers who did not perform the tasks should be paid only for the portion done, though the effect might be to reduce their wages below the rate paid on works under Civil Agency; but that non-able-bodied labourers should be paid not less than the Civil Agency rates. It was enjoined that should an able-bodied man, through continued short payments, become non-able-bodied, he should receive the Civil Agency wage.

8.—After the Dhond and Manmad Railway works were opened, it was directed on 14th March 1877 that persons living so near the line that they could return to their homes at night should not be employed, and a distance of ten miles was recommended as a limit.

The principle was applied rigidly, but with discretion. It was laid down on 7th April 1877 that the distance test was to be adhered to to keep away from the works, idle or well-to-do persons, but that it might be relaxed.

9.—There were few applications for charitable relief. In October 1876 an allowance of Rs. 25,000 was made to the Collectors of the districts noted, * of Rs. 10,000 and Rs. 5,000, to enable them to provide for the feeble poor, and those incapable of work; but up to December 1876 only Rs. 5,000 had been expended.

* Puna, Ahmednagar, Sholapur, Satara, Kaladgi, Belgaum, and Dharwar.

The following table shows the expenditure in charity on labourers on relief works:—

Districts.	Expenditure, in rupees, for labourers on relief works.	
	Discretionary Grant.	Children under seven years.
Khandesh	3,359	4,864
Nasik	3,736	23,297
Ahmednagar	48,395	40,841
Puna	2,30,149	64,370
Sholapur	2,03,183	45,774
Satara	1,06,091	45,600
Kaladgi	2,75,029	86,190
Belgaum	1,55,314	25,450
Dharwar	73,709	36,534
Ratnagiri	429	1,549
Kanara	6,517	587
Tanna	3,219	0
Total Rs.	11,09,130	3,75,056

The number of children was highest in the week ending the 9th June, when the daily average amounted to 120,867. The number of persons aided from the Collector's Discretionary Grants was inconsiderable till April, when it rose gradually till it reached 60,000 in June. Then, in consequence of the monsoon, the number began to fall, but slowly in proportion to the diminution of labourers upon works, as the more helpless people were the slowest to take advantage of the opportunities offered for their ordinary pursuits. On the first alarm of a second year's drought, the number rose till it reached its maximum of 100,182 a day in the week ending the 15th of September 1877. During October and November 1877, the number fell rapidly, and only 4,248 persons were left on the hands of Government.

10.—With regard to the administration of gratuitous relief, the following instructions were issued on the 24th April 1877:—

"As regards the relief-house arrangements, local officers have been working in connection with private relief committees, both central and local, and have availed themselves of the assistance of influential local inhabitants, whose conduct in connection with the relief of the poor has been praiseworthy. This arrangement should be continued and strengthened; the local officers should seek the advice of the central Bombay Committee, in whose hands Government have placed the funds subscribed by munificent persons to enable them to assist the local Committees. To the proper establishment of relief-houses and stations, Collectors of districts should pay careful attention, and impress on their native subordinates, mamlatdars, relief mamlatdars, &c., the importance that the Government attaches to these general measures. Warning and caution should be conveyed to Patels and village officials, in language that will admit of no doubt, that they are responsible for preventing the occurrence of any case of unrelieved distress in their villages. Taluka officers and circle Inspectors should continuously move about from village to village, should inspect the village register of persons upon relief, should supply any deficiency on the part of village Patels and officers, and should immediately bring to the notice of higher authority any instance of laxity calculated to endanger the safety of the poor."

11.—The total expenditure upon famine relief has been 114 lakhs of rupees.*

	Actual number of relief labourers.	Approximate Expenditure, in rupees.	
		Works.	Charity establishment.†
1876.			
December	255,717		
1877.			
January	317,938		
February	243,233		4,50,000
March	228,805		
April	283,828		
May	353,338		
June	357,541		
July	262,460		
August	271,791	93,00,000	21,00,000
September	221,522		
October	79,876		
November	22,722		
December			
1878.			
January			
February			
March			

* Tools, plant, land compensation, medical supervision, &c.
† The expenditure was as follows:—

Expenditure on	Rs.	Loss of	Rs.
Irrigation works	28,00,000	Land Revenue	2,16,000
Roads	55,00,000	Other „	40,700
Petty works	10,00,000	(Abkari)	...
Gratuitous relief	10,00,000		
General supervision and establishment.	11,00,000		
TOTAL	1,14,00,000		2,56,700

Of the work done, that which pertains to irrigation is highly valuable; that to roads is valuable partly in a secondary and partly in a slight degree. The total expenditure required to complete the irrigation works is Rs. 63,00,000.

The total expenditure and loss = Rs. 1,16,56,700.

In the twelve months ending 15th October 1877, the actual increase in the profits from passengers and goods was on the—

	Rs.
Great Indian Peninsula Railway	63,00,000
Bombay, Baroda and Central India	4,00,000
Total increase	67,00,000

But the foreign export trade in grain from Bombay being greatly stimulated by foreign causes, the *natural* increase would have been on the—

	Rs.
Great Indian Peninsula Railway	30,00,000
Bombay, Baroda and Central India	2,00,000
Total natural increase	32,00,000

12.—The remissions of land revenue in the year 1876-77 on account of the famine amounted to Rs. 2,15,110 out of a total revenue of Rs. 1,40,78,500 to be collected that year in the nine famine-stricken districts.

RULES FOR THE REGULATION OF RELIEF-HOUSES.

(Published 30th April 1877.)

1.—Relief-houses are intended—

(a.)—For the gratuitous distribution of food to the blind, infirm, young children, and very aged needing relief, but unable to work.

(b.)—For those able to perform some work, but prevented from doing it either from physical inability or other accepted cause, such as women with children from whom they cannot be separated.

2.—Both (a) and (b) may be divided into two classes:—

(1.)—Those who, after careful examination, are not fit to attend the relief-house, and are fit objects for out-door relief.

(2.)—Those who are capable of attending the relief-house, and who should, therefore, do so.

3.—It is the duty of the village officers (Patels and Kulkarnis) to prepare, for their village, lists showing the names and occupations of each of those who come under the headings entitling them to be considered as fit objects of relief under these rules:—

List A.—To include those unable to do any work, such as the blind, infirm, maimed, and orphan children with no one to look after them. Care is to be taken that no Brahmans, mendicants, fakirs, or professional beggars, are included, unless they happen to be blind, infirm, or maimed.

List B.—Those able to work, such as "Parda-nishin" women, women with children whom their husbands cannot support, or deserted women with children.

List C.—Those unable from physical causes to do out-door work, yet able either to perform some skilled labour, or to do such light labour as may be found at the relief-houses.

4.—Relief-houses may be established—

One central relief-house at the sadar station,
One relief-house at the head-quarter station for each taluka,
Branch relief-houses in each taluka, wherever needed.

5.—The central relief-house at the sadar station should be in charge of a competent person, under the management of a committee consisting of the Collector, the Judge, the Executive Engineer, the Civil Surgeon, the Huzūr Deputy Collector, and the Subordinate Judge, with power to add to their number by inviting gentlemen, European or native, to assist.

6.—The taluka and branch relief-houses should also be in charge of a competent person, under the management of a committee consisting of the Officer in charge of the Taluka, the Mamlatdar, the Subordinate Judge, the Chief Constable, and the Local Fund Overseer, with power to add to their number by inviting native gentlemen to assist.

7.—The Taluka Committee should send into the sadar station relief-house any person a fit object for relief; and the branch relief-house committee should adopt a similar course as regards the taluka head-quarter relief-house. When persons are thus sent to the sadar, the taluka committee shall supply them with means of reaching the sadar station, and with food for the journey. The object is to concentrate the poor into sadar relief-houses and into taluka head-quarter relief-houses, where they will be under care and supervision.

8.—The relief-house should be located in a convenient locality at a short distance from the town or village,—if possible, under a grove of trees; temporary huts should be erected as dwellings, with temporary sheds as workshops, cooking-places, &c.

A general register in the subjoined form to be kept of all persons admitted:—

1	2	3			4	5	6			7	8
		Name.					Residence.				
Date.	Number.	Man.	Woman.	Child.	Father's name.	Caste.	Zilla.	Taluka.	Village.	Age.	Rate at which food is given.

10.—A ticket is to be given to every person admitted, bearing a number corresponding with that in column 2 of the register, and signed by a member of the Committee. No one is to receive food at the poor-house until he presents this ticket.

11.—No one is to be admitted except by order of the Committee.

The net increase due to famine is—

	Rs.
Great Indian Peninsula Railway	33,00,000
Bombay, Baroda and Central India	2,00,000
Total increase due to famine . .	35,00,000

Hence the net cost of the famine is Rs. 81,56,700; from this may be deducted the estimated cost (Rs. 21,00,000) of the irrigation-works, and the final net cost of the famine becomes Rs. 60,56,700.

12.—Patels of villages will send to the Taluka Committee such persons as require to be admitted.

13.—Relief is only to be given in the shape of cooked food, the only exceptions being (*a*) those who are in want of food at the time of examination ; (*b*) those who are given material to work up at their houses.

14.—The food given is not to exceed that needed to preserve health.

15.—The scale adopted in the Belgaum relief-house may be taken as a standard.[1]

The above are ordinary rates for all non-workers, but to working paupers, who may require a larger allowance of food, 1 lb. of grain and 4 oz. of dall may be allowed.

16.—Water should be brought by the paupers ; when this is not possible, water-carriers may be employed.

17.—In preparing food for those whose caste has to be considered, a Brahman cook may be retained.

18.—The people are to be fed in gangs. For each gang a register, similar to the general register, is to be kept, with columns for each day, showing whether each person was present.

19.—The food is to be distributed daily between the hours of 10 A.M. and 12 noon, or at such time as the Committee may determine. Food is to be given only once in 24 hours. All the grain used is to be ground by the paupers.

10.—Mukadams are to superintend the work done. These should be selected from the paupers, and paid half an anna a day in addition to their food. This extra payment is to be made at the end of the month, and to depend on his securing a proper outturn of labour.

21.—The rules are—

Work from 6 till 11 A.M.
Rest for two hours.
Work again till 5 P.M.

22.—The nature of work to be performed is:—

Cotton spinning, cloth and nawar manufacturing of kinds ; rope-making, corn-grinding, road-making, tank-excavating, shed-building, and any other suitable work.

23.—In the morning each person will have a certain task allotted to him. Material—cotton, hemp, &c.—is to be provided daily in sufficient quantities.

24.—A gang sent out to work on roads, &c., will have its day's labour marked out for it.

25.—A Native doctor is to be in charge of each taluka relief-house. Should the doctor order it, there may be a change in the diet.

26.—Lepers are to be kept entirely distinct.

27.—For parda-nashin women, for whom out-door relief should be found, raw cotton to be spun into thread should be given to them in quantities sufficient for seven days' work.

A woman is able to spin daily two ounces of cotton-wool, and the money value of the allowance under the Belgaum relief-house scale is sufficient to provide her with food. A supply of cotton enough for seven days' work should be enclosed in a small basket, and this, with money for the week's sustenance, should be sent to every woman who receives this relief. When seven days have elapsed, a second basket should be sent, and, before delivering it, the first basket should be taken back, filled with the thread into which the first supply of cotton has bee n spun. Thus, each woman will receive an allowance in advance sufficient to maintain her for seven days.

28.—A weekly report must be submitted as to the working of each taluka and branch relief-house,, to the officer in charge of the sadar relief-house, who should submit to the Collector a report of the working of the sadar relief-house, incorporating the reports received from the taluka relief-houses.

29.—Regular accounts of the receipts and expenditure, audited monthly by the Committee of each relief-house, must be kept by the Manager or the Secretary.

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[1] This scale was for each man 1 lb. 2 oz., woman 12 oz., child over 10 years 9½ oz., and child under 10 years 6 oz. of jowari bread, together with a ladleful of masur-dal soup, and for the children a pint of gruel also.

THE FAMINE IN THE MADRAS PRESIDENCY.[1]

October 1876 to October 1878.

In consequence of the failure of the south-west and north-east monsoons of the year 1876 following on a bad north-east monsoon in 1875, famine occurred, growing in intensity as the year closed. On the 24th October 1876, the Government of Madras informed the Government of India of the distressed state of the country. The region affected embraced an area of 84,367 square miles, with a population of 19,377,132.

Out of twenty-one districts containing a population of twenty millions, thirteen districts besides the town of Madras, were affected:—

	Population.		Population.
Cuddapah	1,351,194	Salem	1,966,995
Madwa	1,325,549	Trichinopoly	1,200,408
Coimbator	1,763,274	Kurnul	959,640
Bellary	1,668,006	Chingleput	935,184
North Arcot	1,945,642	Tanjor	1,973,731
Kistna	1,434,090	South Arcot	1,755,517
Nellor	1,329,516	Madras Town	397,552
	10,817,271		9,189,027

His Excellency the Viceroy and Governor-General in Council having had a personal conference with His Grace the Governor of Madras at Delhi in December 1876, Sir R. Temple, Bart., K.C.S.I., Lieutenant-Governor of Bengal, was deputed to inspect the distressed districts and to communicate with the Local Government as to the measures of relief.[2]

Sir Richard arrived at Kurnul on the 14th January 1877; visited the famine-stricken districts of Bellary, Cuddapah and Trichinopoly; reached Madras on the 26th January 1877; left on the 28th, and proceeded to Chingleput and North Arcot; met His Grace the Governor on the 12th February at Bellary; returned to Madras on the 9th March, (and again on the 18th April), visiting and re-visiting the afflicted districts; and finally quitted the Presidency on the 26th April 1877.[3]

From this time, prices became higher, distress aggravated, and the numbers seeking relief greater. In May 1877 the rates of wages on relief works introduced in January 1877 were enhanced; an organised system of village-inspection and relief instituted, by which money-doles were issued to the destitute in their own villages, children relieved on works by a money-payment, and advances made to cultivators for sinking wells and to weavers for material.[4]

Between the 18th and 21st May 1877, a cyclone raged over the city of Madras, the coast-region to the north and south, and some distance inland; the rainfall was 20 inches or half a year's average rainfall. In the district of Chingleput more than 11,600 head of cattle died. The Government Astronomer at Madras showed that the solar heat *in vacuo* was 10 degrees above the average, hence condensation of moisture was impossible.

Between May and June 1877 the season continued unfavourable.[5]

In June 1877 the monsoon set in; but the rains were partial and inadequate. In July affairs became so critical that the following measures were adopted:—

Those who could perform 50 per cent. of an ordinary task were relieved on the works; those who could not, in their own villages. Village relief was arranged so as to tempt residents to remain at home, unless able to work for Government. Wanderers were sent to closed camps and kept there to suitable labour; the camps were divided into two portions, with different rations, one for sick paupers, the other for paupers too weak to work; village relief, camp relief, and the rate of wages were everywhere maintained on similar scales: in relief work the principle of family union was kept up and the larger works, with this view, performed by piece-work; those in camp fit to travel were relegated to village relief; no foreigners from Maisur, Haidarabad, or Bombay, received further relief, beyond being detained until they could be returned; the coast canal completion and extension and the improvement of the Palar Anicut channels and of the Kistna Delta works were put in hand.[6]

The difficulty of procuring grain for relief purposes became so great that district officers were authorized to advertise for supplies in each taluk sufficient for one month's consumption. In August 1877 two millions were entirely dependent on State aid.

At the close of August 1877, His Excellency the Viceroy visited Madras to confer with the Government as to famine arrangements, and left on the 21st September.

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1 The information herein given is supplemented by that in pages 19—52.

2 See page 106.

3 Mr. Digby, in vol. 1 of the "Famine Campaign," page 82, says:—

The impression left on the mind by the perusal of the 200 minutes and memoranda penned (in a period of 100 days) by Sir R. Temple and his staff is, that the disaster was met successfully and well. But the general report and the many minutes are misleading, as containing the results of a necessarily imperfect acquaintance with facts. The idea derived from these reports is, that only a very few cases of death from starvation took place; and that the village 'system' of official rule could be used to prevent cases of very deep distress. A more insecure foundation to rest upon in such matters than the untrustworthy Indian village official cannot be conceived. See page 54.

4 In his despatch of the 12th May 1877, the Governor of Madras observed to the Secretary of State:—

In these districts the deaths have risen from 19·7 per thousand in October 1876 to 67·9 in February 1877.

During the famine of 1873-74 in Bengal, when the price of staple food-grains rose to 20 lbs. per rupee, it was considered necessary that the State should import grain. The population of Madras, subject to distress by much higher prices, 12 to 14 lbs. per rupee, is left without any similar State intervention.

5 Mr. Digby, in his "Famine Campaign," vol. 1, page 182 (July 1877), says:—

I am convinced that many of those who wander about starving and dying prefer to live and die in this way, rather than put themselves under the very slight restrictions of relief camps. Those taken in an unconscious state, no sooner recover health than they take their departure.

6 In June 1877 the Local Governments were concerned with the question of food-supply and its price. Merchants were only moderately active, considering that a fall of rain would lower prices. From August 1876 to 15th June 1877, the total quantity of food-grain imported into the Madras Presidency was 320,000 tons; the food-stocks of the people were exhausted; the Government small reserves were trenched upon. The price of food was about 10 to 14 lbs. per rupee; the quantity of food, at 1 lb. per head per diem, required was 3,849,300 tons. On the 1st June 1877, there were only 1,400 tons (one week's supply) of grain in the town of Madras.

Under section 28 of the Indian Councils Act, it was resolved that—

all famine questions should be disposed of by the Governor; that Collectors should on famine matters address the Government direct, and not through the Board of Revenue; that the Government should abstain from importing grain on its own account; that a scheme of public works under departmental supervision should be the principal feature of the relief system, all other forms of relief being subsidiary; that large works under professional agency should not be limited to remunerative works alone, or to those that could be finished during the famine; that gratuitous relief should be temporary and subsidiary to the main object of sending distressed people to the works or to their homes; and that village relief (other than casual relief to famine-stricken travellers) should be confined to resident villagers, house-ridden or those otherwise unfitted for labour.

Mr. Hynes, Mint Master, Bombay, said :—" Silver ornaments and melted country silver discs are pouring into the Mint at the rate of 9 lakhs of rupees per mensem."

	Rs.		Rs.
1876—		In 1873-74	11,82,414
April	10,995	" 1874-75	92,381
May	1,161	" 1875-76	76,831
June	7,896	" 1877—	
July	...	April	6,08,740
August	1,825	May	8,37,034
September	...	June	11,51,515
October	3,855	July	15,33,212
November	69,609		
December	1,04,232		
1877—			
January	1,29,836		
February...	2,05,542		
March	3,06,848		54,82,127
Total, official year 1876-77 ...	8,41,799		

The Government of India strengthened the Engineering staff of the Presidency, and furnished European officers for the supervision of gratuitous relief.

General Sir M. Kennedy, R.E., was, on the 31st August 1877 appointed Personal Assistant to the Gove rnor for famine purposes.

In September 1877 the rains afforded employment to the poor, and the prices fell.

Owing to the rains and improvements in organisation, the number of persons on State relief declined.

By advances to needy raiyats for seed-grain, by closing petty works hard to supervise, by concentrating labourers on large works, and by enjoining a firm application of the tests already laid down,—the people were encouraged to go to their homes.

About the end of October 1877 the north-east monsoon set in; heavy rain fell in all districts, save Gurgaon and Vizagapatam.

In September and October 1877, the total reduction in numbers was a million (nearly).

In November and December 1877, the numbers decreased; but in January 1878, and following months, prices rose and checked the diminution of persons.

In March 1878 fresh works were started in North Arcot and Bellary; some of the camps closed in the Bellary District had to be re-opened. In the North Arcot, Coimbator, Salem, and Chingleput Districts, pressure began again to be felt.

It was not considered likely that relief operations would be brought to a close before October 1878.

In the years 1876—78, the sum of £11,000,000 (*circa*) were expended on famine relief; in England in the same period, £21,000,000 were spent on Poor Law administration; during these years, one-fourth of the stricken population in Madras died.

In the second half of 1877 two and a half million of acres, representing a million sterling of land revenue (not for one year, but for a series of years), less than the average were uncultivated.

At the Society of Arts in 1873, Sir B. Frere said :—

Men are death-stricken by famine long before they die; the effects of insufficient food long-continued may shorten life after a period of years, months, or days. Invariably there is a point, often reached long before death, when not even the tenderest care and nursing can restore a sufficiency of vital energy to enable the sufferer to regain temporary health and strength.

On the 2nd August 1877 [1] a telegram was sent from Madras to the Lord Mayor of London through the *Times* newspaper, stating :—

Population affected, 20,000,000; numbers on charity, 1,075,000; distress reaching better classes; the price of grain double that prevailing during the Bengal famine (1874). Necessity of assistance most urgent.

And again on the 10th August 1877 a telegram was sent *direct* to the Lord Mayor.

The Government of India, in its letter No. 773, of the 21st August 1877, objected to the public being asked for subscriptions in aid of famine relief, but afterwards allowed the call for subscriptions to be carried out.

The calling for subscriptions for the Famine Relief Fund was closed on the 5th November 1877.

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[1] In August 1877 the area of the famine embraced a population of 25,000,000, of whom 12,500,000 required imported food.

Hence the quantity of food per month required=12,500,000 × 1 lb × 30 days = 168,750 tons.

Food was not coming into Madras at this rate. The fear was that local stock of hoarded grain might give out and that the Government might have whole populations on their hands without the prospect of being able to carry food enough to keep them alive.

It was calculated that from August 1877 to January 1878 the quantity of imported grain required would be 3,500 tons per diem, to support ten millions of people. The Railways were not carrying more than 2,500 tons per diem.

The total amount received was :—

	Rs.
Mansion-House Fund...	56,63,924
Lanchasire and Yorkshire	9,73,023
Scotland	4,46,221
Australia	5,70,101
Other Colonies	57,818
India	26,026
TOTAL Rs. ...	79,79,350

The relief was disbursed by nine divisional committees superintended by the town Central Committee.

The distributions were :—

Districts.	Rs.	Districts.	Rs.
North Arcot	5,50,160	Malabar	17,400
South Arcot	2,51,650	Neilgherry Hills	13,385
Bellary	5,73,000	Nellor	4,49,159
Chinglepnt	4,25,000	Salem	6,29,650
Coimbator	4,56,820	Tinnevelly	1,80,000
Cuddapah	3,56,000	Trichinopoly Tanjor	3,63,900
Kurnul	3,29,000	Travancor	5,000
Madras	2,41,988	Vizagapatam	2,000
Madura	3,70,450		

	Rs.
The Province of Maisur	16,50,000
„ Bombay	80,000
„ Central India	?
City of Madras	1,69,000

In April 1877 proposals were made by the Chief Commissioner, British Burma, that 20,000 of the famine-stricken population of Madras should be transferred to Burma; a grant of Rs. 150 for each family consisting of man, wife, and two children for the following purpose :—

	Rs.
The construction of a house	20
One pair of bullocks	80
Thirty baskets of paddy, for seed	30
Salt and condiments	5
Ploughs and agricultural implements	15
TOTAL Rs. ...	150

The Government of India, in its letter of the 21st March 1877, allotted the sum of 19 lakhs for this purpose.

In consequence of delays in the drafting of the Rules, Burma Land and Revenue Act of 1876, nothing was really done in transporting the people to Burma.

The following table shows the number of persons who emigrated to Ceylon.[1] So great was the influx, that the Ceylon Government in August 1877 requested that the emigration might be stopped :—

District.	NUMBER OF EMIGRANTS DURING THE TEN MONTHS ENDING 31ST JULY 1877.								AVERAGE DURING THE PREVIOUS THREE YEARS.							
	Ceylon.	Burma.	Straits Settlements.	Mauritius.	Réunion.	West Indies.	Natal.	Total.	Ceylon.	Burma.	Straits Settlements.	Mauritius.	Réunion.	West Indies.	Natal.	Total.
Ganjam	...	...	...	...	...	...	...	3,099	...	...	...	...	...	...	...	2,036
Vizagapatam ...	1	1,971	...	...	...	...	...	1,972	...	1,690	...	...	...	...	...	1,690
Godavery	...	1,735	...	...	...	...	...	1,735	...	1,958	...	...	...	...	...	1,958
Kistna	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nellor	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Madras	...	...	...	...	1,560	1,199	...	2,759	...	...	...	791	983	1,132	...	2,906
South Arcot ...	26	...	...	...	...	...	...	26	16	...	118	...	...	...	...	134
Tanjor	...	...	2,506	...	...	...	...	2,506	...	...	1,776	...	...	...	...	1,776
Madura	156,973	...	...	...	...	...	...	156,973	66,744	...	...	...	...	...	...	66,744
Tinnevelly	38,693	...	...	...	...	...	...	38,693	20,872	...	...	...	...	...	...	20,872
South Canara ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malabar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	195,693	3,706	2,506	...	1,560	1,199	...	204,664 3,099	87,632	3,648	1,894	791	983	1,132	...	96,080 2,036
								207,763								98,116

In March 1878, a partial census was taken; in some places, 25 to 30 per cent. of the people had died.

Sir Michael Kennedy estimated the cost of the famine to the end of the distress at Rs. 50,00,000; the agricultural returns showed that 2½ millions of acres less than the average were under cultivation; and that consequently for many years the Government will suffer from a diminished land-revenue.[2]

[1] See page 28.

[2] Mr. Digby, in Vol. 1 of the Famine Campaign in Southern India, page 111, says :—

Our present experiences are enough to make any one a believer in despotic rule. I doubt if there is any way of meeting famine except by treating the people thrown on our hands as refractory children. Paupers receiving gratuitous relief require to be shut up in camps, and made to obey orders. If relief works are to mean anything, they must mean pressed labour.

TABLE 1: *showing the results of the partial Census of 1878, compared with the Census of 1871, plus an increment of 1½ per cent. per annum, during the five years (1872 to 1876), after additions and deductions (on account of the transfer of villages from one taluk to another) to render the comparison correct.*

Districts of the Madras Presidency.	Taluks.	Number of Villages.			Number of Houses.				Population according to Census of 1878.							Population of 1871, plus the increment.			Difference between columns 16 and 19.	Percentage: decrease or increase.	Difference between columns 16 and 17.	Percentage: decrease or increase.
		Inhabited.	Uninhabited.	Total.	According to Census of 1878.	According to Census of 1871.	Difference between columns 6 and 7.	Percentage of increase or decrease.	Males. Above 10 years of age.	Males. 10 years of age and under.	Females. Above 10 years of age.	Females. 10 years of age and under.	Total. Males.	Total. Females.	Total. Total.	Population according to Census of 1871.	Increment of 1½ per cent. per annum from 1872 to 1876.	Total.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Salem	Salem	594	42	636	65,405	95,364	— 29,959	— 31·4	106,805	48,395	114,735	47,521	155,200	162,256	317,456	403,892	31,218	435,110	— 117,654	— 27·0	— 86,436	— 21·3
	Athur	184	10	194	30,387	29,755	+ 632	+ 2·1	49,392	24,394	55,061	24,942	73,786	80,003	153,789	162,630	12,572	175,202	— 21,413	— 12·2	— 8,841	— 5·4
	Namkal	515	59	574	66,027	76,082	— 10,055	— 13·2	72,004	35,226	81,555	34,952	107,230	116,507	223,737	273,382	21,133	294,515	— 70,778	— 24·0	— 49,645	— 18·2
	Trichengod	575	23	598	56,990	66,765	— 9,775	— 14·6	58,225	27,421	60,171	27,362	85,646	87,533	173,179	246,986	19,089	266,075	— 92,896	— 34·9	— 73,807	— 29·8
	Oossoor	768	172	940	39,773	45,257	— 5,484	— 12·1	48,134	18,728	51,651	18,968	66,862	70,619	137,481	189,068	14,616	203,684	— 66,203	— 32·5	— 51,587	— 27·3
	Kistnagiri	513	99	612	33,092	32,236	+ 856	+ 2·6	39,991	20,860	44,078	21,085	60,851	65,163	126,014	170,249	13,159	183,408	— 57,394	— 31·3	— 44,235	— 25·9
	Darampuri	558	182	740	36,024	42,771	— 6,747	— 15·7	46,087	22,807	51,601	22,926	68,894	74,527	143,421	187,312	14,480	201,792	— 58,371	— 28·8	— 43,891	— 23·4
	Tripator	419	29	448	35,265	41,823	— 6,558	— 15·6	53,896	27,626	59,782	27,095	81,522	86,877	168,399	192,946	14,913	207,859	— 39,460	— 18·9	— 547	— 12·7
	Uttengiri	449	119	568	35,641	41,995	— 6,354	— 15·1	39,621	16,876	43,093	16,830	56,497	59,923	116,420	150,569	11,638	162,207	— 45,787	— 28·2	— 34,149	— 22·6
	Total	4,575	735	5,310	398,604	472,048	— 73,444	— 15·5	514,155	242,333	561,727	241,681	756,488	803,408	1,559,896	1,977,034	152,818	2,129,852	— 569,956	— 26·8	— 417,138	— 21·1
Bellary	Gooty	154	4	158	23,979	27,241	— 3,262	— 11·9	43,380	18,309	42,139	17,802	61,689	59,941	121,630	142,716	11,029	153,745	— 32,115	— 20·9	— 21,086	— 14·7
Kurnool	Nandikotkur	101	...	101	20,297	19,273	+ 1,024	+ 5·3	30,009	11,011	30,210	10,415	41,020	40,625	81,645	103,783	8,023	111,806	— 30,161	— 26·9	— 22,138	— 21·3
Cuddapah	Mandanapalli	95	10	105	28,844	25,712	+ 3,132	+ 12·1	38,290	16,447	37,663	15,809	54,737	53,442	108,179	134,546	10,400	144,946	— 36,767	— 25·4	— 26,367	— 19·5
Nellor	Gudur	205	5	210	25,280	25,194	+ 86	+ ·3	44,471	16,760	42,933	16,200	61,231	59,133	120,364	142,257	10,996	153,253	— 32,889	— 21·4	— 21,893	— 15·4
Coimbator	Palladam	191	3	194	59,006	60,429	— 1,423	— 2·3	67,955	33,591	72,942	33,223	101,546	106,165	207,711	232,155	17,942	250,097	— 42,386	— 16·9	— 24,444	— 10·5
Chingleput	Ponneri	242	17	259	16,910	16,537	+ 373	+ 2·4	34,257	16,860	33,389	15,954	51,117	49,343	100,460	103,675	8,015	111,690	— 11,230	— 10·0	— 3,215	— 3·1
Kistna	Gudivada	206	40	246	21,103	15,084	+ 6,019	+ 39·8	34,215	17,259	33,549	16,769	51,474	50,318	101,792	89,900	6,948	96,848	+ 4,944	+ 5·1	+ 11,892	+ 13·2
Trichinopoly	Museri	224	10	234	56,393	56,176	+ 217	+ ·4	87,650	42,948	95,291	40,758	130,598	136,049	266,647	255,132	19,722	274,854	— 8,207	— 2·9	+ 11,515	+ 4·5
Tanjor	Mayaveram	344	7	351	42,486	39,853	+ 2,633	+ 6·6	83,317	37,179	85,907	36,596	120,496	122,503	242,999	221,749	17,138	238,887	+ 4,112	+ 1·7	+ 21,215	+ 9·5
Tinnevelly	Ambasamudram	89	39	128	39,168	39,927	— 759	— 1·9	51,740	24,984	57,973	25,438	76,724	83,411	160,135	151,670	11,725	163,395	— 3,260	— 1·9	+ 8,465	+ 5·5
Total of the six famine taluks, other than those of the district of Salem	......	988	39	1,027	174,316	174,386	— 70	— ·04	258,362	118,978	259,246	109,408	371,340	368,649	739,989	859,132	66,405	925,537	— 185,548	— 20·6	— 119,143	— 16·1
Total of Salem	......	4,575	735	5,310	398,604	472,048	— 73,444	— 15·5	514,155	242,333	561,727	241,681	756,488	803,408	1,559,896	1,977,034	152,818	2,129,852	— 569,956	— 26·8	— 417,138	— 21·1
Grand Total of 15 famine taluks	......	5,563	774	6,337	572,920	646,434	— 73,514	— 12·9	772,517	355,311	820,973	351,084	1,127,828	1,172,057	2,299,885	2,836,166	219,223	3,055,389	— 755,504	— 32·8	— 536,281	— 23·3

-77.

1877.				
June.		July.		A
Srs.	Ch.	Srs.	Ch.	Srs.
8	5	...		.
9	15	8	2	5
9	0	7	0	7
7	2	6	3	5
6	10	5	6	5
7	3	6	11	6
10	6	8	8	7
...		...		7
9	4	...		7
10	3	7	14	7
..		...		..
9	3	7	0	7
8	0	5	13	5
...		...		..
10	10	...		8
13	13	12	9	9
12	9	10	8	9
10	7	8	8	6
9	13	7	1	6
8	9	6	11	5
8	5	5	10	5
4	11	4	2	4
6	13	5	1	4
6	12	4	13	5
8	0	6	7	6
6	8	5	5	5
7	3	6	0	5
...		...		4
...		...		..
4	11	5	2	4
9	11	7	11	[illegible]
20	0	23	8	21
...		...		[illegible]
...		...		[illegible]
25	0	20	0	18
23	8	21	0	21
34	8	32	8	24
18	14	16	4	14
17	0	14	0	[illegible]
5	8	13	8	[illegible]
20	0	18	0	[illegible]
...		...		[illegible]
14	7	12	8	8

urn shows the num

TABLE 3.

Showing the Number of People Supported by the Government of India in the Madras Presidency.

[The table is incomplete, as information is wanting.]

Period ending — Month.	Day.	Year.	On relief works.	On gratuitous relief.	Total.
January	14	1877	1,055,000	110,000	1,165,000
February	6	,,	...	...	908,410
,, ...	13	,,	...	...	891,030
March	10	,,	...	...	667,477
,, ...	24	,,	...	...	655,066
April	1	,,	695,000	115 000	810,000
,, ...	15	,,	708,014	225,289	933,303
,, ...	21	,,	738,788	277,366	1,016,154
,, ...	28	,,	719,849	333,646	1,053,495
May	26	,,	792,118	381,454	1,173,572
August	1	,	957,390	838,786	1,796,176
,, ...	8	,,	983,505	1,001,589	1,985,094
,, ...	15	,,	958,160	1,077,682	2,035,842
,, ...	22	,,	933,055	1,205,391	2,138,446
,, ...	28	,,	919,771	1,326,971	2,246,742
September	4	,,	901,227	1,430,885	2,332,112
,, ...	11	,,	773.094	1,513,555	2,286,649
,, ...	18	,,	708,255	1,633.437	2,346,692
,, ...	25	,,	615,251	1,651,324	2,266,575
October	2	,,	628,259	1,603,721	2,231,980
,, ...	9	,,	587,228	1,531,255	2,118,483
,, ...	16	,,	542,853	1,283,966	1,826,819
,, ...	23	,,	484,365	1,060,034	1,544,399
,, ...	30	,,	417,370	944,839	1,362,209
November	6	,,	363,298	721,879	1,085,177
,, ...	13	,,	290.895	624,027	914,922
,, ...	20	,,	300,558	513.800	814,358
,, ...	27	,,	252,123	411,715	663,838
December	4	,,	237,797	365,589	603,386
,, ...	11	,,	208,517	317,001	525,518
,, ...	18	,,	183,006	302,302	485,308
,, ...	25	,,	202,323	281,432	483,755
January	1	1878	201.589	267.483	469,072
,, ...	8	,,	168.673	233,342	402,015
,, ...	15	,,	158,643	210,896	369,539
,, ...	22	,,	144,849	191,641	336,490
,, ...	29	,,	145,693	181,060	326,753
February	5	,,	150,906	165,072	315,978
,, ...	12	,,	141.551	153,981	295,532
,, ...	19	,,	132,062	146.339	278,401
,, ...	26	,,	140,006	142,564	282,570
March	5	,,	126,969	133,131	260,100

TABLE 4.

Month.	Deaths.		
	In 1877.	In 1876.	Increase.
February	94,545	42,498	52,047
March	91,119	35,863	55,256
April	77,916	37,675	40,241
May	92,355	39.557	52,798
June	95,770	42.031	53.739
July	134,433	48,315	86,118
August	157,558	40,090	117,468
September	140,165	36,688	103,477
October	128,962	34,249	94.713
Total in nine months ...	1,012,823	356,966	655,857

Abstract of a Report, dated 14th April 1877, by Sir Richard Temple, *on the Madras Presidency.*[1]

In 1876, through the greater part of the Madras Presidency, the summer rains were deficient and the autumnal rains failed disastrously. In the littoral tract of Orissa and in the deltas of the Godavery and the Kistna, the rainfall was propitious. In the rest of the Presidency, comprising the peninsula of Southern India, it ranged from 3 to 20 inches—in many large tracts of the worst districts, from 6 to 10 inches; whereas the average annual rainfall ranges from 20 to 40 inches. On the western or Malabar coast, where, if anywhere, the rains are expected to be unfailing, it measured only 87 inches, against the annual average of 126 inches.

The misfortune threatening in July 1876, becoming more pronounced month by month, settled down upon the Madras Presidency in November, aggravated by the similar misfortune which had befallen the Dakan districts of the Bombay Presidency, the greater part of the Maisur territory, and a portion of the Nizam's dominions.

The drought began in the north below the river Tapti, in Khandesh; became severe in the Bombay-Dakan, in the districts of Ahmadnagar, Puna, Sattara, Sholapur, and Kaladgi; was milder in the South Mahratta Country near Belgaum and Dharwar, and in the Nizam's territories around Gulburga and Raichor; reached the Toongabhadra (or Toombadra) river, joining the Kistna below Kurnul; followed the Kistna to the eastern coast; and stretched in this latitude (16°) from sea to sea.

In the Madras Presidency, on the southern bank of the Tungabhadra the drought developed its most destructive agencies along the frontier, covering the districts of Bellary and Kurnul, the greater part of Cuddapah, and all the country above the Ghâts. It visited (across the mountains) the districts of Nellor, Chingleput (including the city of Madras), North Arcot, Salem, Coimbator, and Trichinopoly; caused the Kistna and its affluents to roll down in such a diminished volume that the canal from the Tungabhadra, near Kurnul, and the irrigation works of the Masulipatam delta, were stinted in supply; made the freshes and floods of the Penair descend in such shrunken proportions that the reservoir and channels of Nellor were nearly deprived of water; stopped the supply of the Cauverypauk lake, near Arcot, and rendered the dam across the Palar inoperative; rested for a time on the districts of South Arcot, Tanjor, and Trichinopoly, and threatened them with evil, from which they were saved,—South Arcot mainly by later rain, and Tanjor and Trichinopoly partly by rain, partly by their canals; and extended itself with havoc throughout the southern peninsula, laying waste the districts of Madura and Tinnevelly down to the sea-shore near Cape Comorin,—the tracts irrigated from the Tambrapoorni, near Tinnevelly, alone escaping destruction. Though it failed to destroy the harvest of the rich tracts of Malabar and Travancor, or to prevent the Cauvery from filling the canals of the Tanjor delta, it rendered them powerless to send the succour that might otherwise have been expected.

Thus were injured ten districts of the Madras Presidency, containing an area of 74,000 square miles and a population of 16,000,000. The whole of the area and of the population did not equally suffer. Approximately, 11,000,000 of people were distressed in a greater, and 5,000,000 in a lesser, degree.

In the devastated tracts, there are two harvests of food-grain in the year, one depending on the summer, the other upon the autumnal, rains. Of the whole cultivated area, a small part (termed "wet") is watered from artificial tanks, which often rise to the proportions of lakes; the remainder (termed "dry") is watered in some parts from wells, but for the most part from rainfall. The proportion of wet lands varies largest in Chingleput, where it exceeds one-half of the whole cultivation, and smallest in Bellary, where it is only one-twentieth.

The failure was worst in the "wet" lands. The tanks were left almost dry. The sluices, the distributing channels, and all the apparatus of irrigation lay useless. Such a universal drying up of the tanks, so celebrated below the Ghâts, has hardly been witnessed within the memory of man.

The "dry" lands fared better. Whatever rain fell, caused something to spring up; but fertile expanses of champaign looked bare and arid,—little better than a desert. The wells retained some of their supply, though the water fell lower and lower, and often disappeared. Of the more valuable crops, sugar-cane, tobacco, garden produce, were in part preserved; but the cotton crop of Bellary and Adoni yielded nothing; the factories were closed, the machinery was silent. The cultivators excavated their failing wells deeper and deeper in the rocky strata; dug pits in their fields, searching for moisture; sunk wells with wickerwork; and delved for springs and undercurrents of water in the sandy beds of the dry rivers, where their toil was often rewarded. These practices are known to the people in ordinary times, but were resorted to largely during this year. The Government exhorted the cultivators to deepen old and to excavate new wells; and, relaxing rules and conditions, offered them advances of money.

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[1] Sir R. Temple entered the Madras Presidency on the 14th January 1877 and quitted it on the 26th April 1877.

The ratio of $\frac{\text{this abstract}}{\text{the original}} = \frac{1}{2 \cdot 2}$

Out of a full crop, there were only the following fractions:—

Crop in 1876-77.

		Population.	Persons to the square mile.
Bellary	One-sixteenth proportion of ordinary yield	1,688,000	151
Kurnul	One-sixteenth " "	960,000	130
Cuddapah	Three-sixteenths " "	1,351,000	161
Nellor	One-fourth " "	1,377,000	162
Chingleput (inclusive of Madras city)	Three-sixteenths " "	1,336,000	340
North Arcot	One-fourth " "	2,015,000	282
Salem	One-third " "	1,967,000	262
Coimbator	One-fourth " "	1,763,000	237
Madura	One-fourth " "	2,267,000	238
Tinnevelly	Five-sixteenths " "	1,694,000	327

The consequences of such a failure were affected by the results of previous years. The year 1874 was good, and left a reserve of surplus grain; but 1875 was in many places unpropitious; and failure of crops in Maisur drained off supplies. In Bellary and in some parts of Kurnul, 1875 had been unfortunate in its seasons; and in Bellary 1874 had also been unfavourable. These circumstances caused the drought of 1876 to be felt with more intensity in Bellary than anywhere.[1]

From no part of the Madras Presidency could any surplus produce be drawn in aid of the distressed districts; in the Maisur territories, out of a population of 5,000,000, nearly 4,000,000 were distressed; in the Bombay Presidency, 5,000,000 of people were afflicted; from the Nizam's dominions no considerable importation of grain could be anticipated, as there also distress existed. On the other hand, there was a good harvest in British Burma, in Guzerat, in the Central Provinces, in Malwa, in Northern India, in Bengal, Bahar, and Orissa.

There was surplus grain enough within the limits of British India. But it was asked whether, by sea and land routes, it could be brought so as to reach the distressed districts of the Madras Presidency. There was communication by sea from Calcutta to Madras, to Negapatam, to Tuticorin; and from Bombay to Beypur. From each of these ports there was railway communication to every one of the distressed districts save Nellor and Kurnul; in the case of Kurnul, the rail ran up to the western border. On these railways was laid the additional task of carrying grain to Bangalor, the entredepôt for the grain trade of the Maisur Province. The railway from the direction of Bombay pierced the Tungabhadra frontier, the very quarter where the drought lay heaviest. Ships could bring much more grain to the ports than the railways could carry away; but the railways combined could carry 2,700 tons of food a day to the distressed districts. Those who have contended with famine in Orissa, in North Bengal, in Bahar, in Northern India, in Rajputana, know what priceless advantages the possession of transport by ships and by railways implies.

While prices rose to one rupee for six, seven, or eight sirs (12, 14, or 16lbs.) of food-grain, tantamount to prices three times as dear as those of ordinary years, the prices in the Bengal Presidency were comparatively cheap; ranging at Calcutta at one rupee for 16 sirs (32lbs.). Thus, a considerable difference existing between the prices at the places of demand and those at the places of supply, a fair profit on importation by trade was afforded.

The area of the distressed districts, very extensive, thinly peopled, divided by mountainous ranges, is well provided with cart-roads. Amidst the pasturage and the grazing-grounds in these hilly regions, has been reared a race of hardy and long-enduring draught-cattle; the carts are among the best in India; European merchants enter into the grain trade of the interior; native grain-dealers are resourceful and enterprising. If the grain, rail borne from distant provinces, should reach the railway stations, there was little doubt of the people's power to carry it to their villages.

Then arose the question as to whether the people had sufficient stocks of grain. There was a strong, though undefined, belief that they really had; for agricultural trouble of some sort—at one time drought and pestilence, at another rain, storm, and flood—has for generations been so chronic that the people habitually keep stores of grain. One season of propitious rain causes an immense productiveness in this inexhaustible soil.

The draught-cattle and some of the best animals might be sustained through the troublous time, and the innumerable cattle used for husbandry would be driven off in herds to the Eastern and Western Ghâts, the central ranges, the backbone of the peninsula, where even in the year of scanty rainfall there is pasture.

The Telugu and Tamil ryots[2] of the ryotwari settlements are the peasant proprietors of Southern India. They have a beneficiary interest in their lands; pay a moderate and equitable land-tax, assessed in some districts after a professional field survey or settled after revision of the original assessment in other districts; have had every motive to save out of their yearly profits; are formed into village communities headed by men holding hereditary offices; are generally able to maintain themselves in any passing adversity; are reputed poor, but are, indeed, a peasantry whom any Government might be proud to possess. Prone to live beyond

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[1] See page 24.
[2] There are Canarese ryots also in Southern India, but they are not numerous in the distressed districts.

their humble income and to incur debt, they have, notwithstanding, an unfailing credit with the village-bankers, or grain-dealers. Under the ryots are the farm labourers, often holding fields of their own, but adding to their livelihood by labouring in the fields of their neighbours. They form a large class, having interests bound up with those of the superior ryots. Those who possess any fields of their own may have small stores of grain. Those in the permanent employ of the village headmen or of the more substantial ryots, constitute a part of the capital of these little estates, and will be supported for a time by their employers. The rest must languish.

Below these, are low-caste people in a very varying condition, often in good case, often in degradation,—in scarceness in good seasons, and within the narrowest margin of existence in bad. It is feared that from these outcasts charitable sympathy was withheld by the better classes. There are also gipsy clans who gather wild fruits and eke out a precarious subsistence by disposing of jungle produce and by doing chance work in the villages.

In the distressed districts are places sacred to Hindus, and frequented by pilgrims, by religious mendicants, and by beggars. If these people reached the holy spots, they would doubtless be cared for by the religious establishments; but they might find their travelling purse exhausted by the increased cost of food, and faint by the way.

Several of the most drought-stricken tracts belong to zamindars possessing rank and status without substance,—absent, in debt, or otherwise unfit to cope with the scarcity. These estates are sure to teem with instances of unmitigated misery.

In every town, in every village, are guilds of weavers, making the finer or the coarser fabrics, the groves of trees serving as factories, and resounding with the bustle of manufacture. But the demand for cloths has ceased for a time, the groves are silent, the spindles put up, the looms idle. The weavers, thrown out of work, have means to last them for a time; but, pinched and straitened, they are unwilling to seek from Government assistance given only in return for labour unsuited to their habits.

During the summer of 1876 small relief works were opened in Bellary, in Kurnul, and in other distressed districts. These operations increased as the months passed. It was hoped that they would cease if the autumnal rains should be propitious. Up to the end of October, the number of persons thus admitted to relief was not large. In the case of Bellary, there was the consideration that the season of 1875 had been unfavourable. The price of food was dear.

In the autumn, the state of the grain trade attracted the attention of the Government. The failure of the autumn rains made it certain that a very large supply of food-grain would have to be imported. If the trade should be unable to do this, then it might be necessary for the Government to intervene, to prevent the people from perishing from famine. During August, September, and October 1876, 5,637 tons of grain were imported into Madras from places beyond the Madras Presidency; 38,000 tons into the Madras port from various ports subordinate to the Madras Presidency; and 20,446 tons by rail from Madras into the drought-stricken districts. Such facts occurring during these three months, indicated considerable movements of trade and as much activity as could be expected; and the consideration of high prices in Madras compared with cheaper prices and abundant harvests in Bengal might have caused an anticipation of large importation by sea during the winter months. The Madras Government felt anxiety. Without positive signs of the grain markets being anywhere empty, the grain trade was sensitive and excitable. At places, there were grain riots. At Kurnul, troops were called out. In several districts, grain-robberies became daring and frequent. In November and December 1876 numbers of famishing people came from the neighbouring districts into the city of Madras to beg for food.

The Government of Madras determined to purchase, secretly and confidentially through a local firm, 30,000 tons of grain from places beyond the Presidency. This grain was to be held as a reserve, or to be sent to any place in the interior of the country where there might be any dangerous deficiency of grain. It was decided that relief labourers should be paid in grain wherever convenient. For this purpose were purchased about 13,000 tons, making the total to 43,000 tons.

The position of the markets in the remote tracts near the Maisur frontier and within the Eastern Ghâts attracted attention. It was apprehended that native traders would in some cases combine to keep prices abnormally high, and in other cases prove unequal to the task of supplying the local markets. It might be necessary for Government to throw grain into various places, not only to pay its own relief labourers, but also to influence the grain-markets in favour of the people, to frustrate combinations among the traders, and to prevent prices rising to an excessive degree. A Government transport agency was established at Bellary for the distressed districts above the Ghâts. It was to ascertain from each local officer how much grain would be wanted; to make contracts for the supply of carts and bullocks; to carry grain to such places as might be settled under the direction of Government; to receive for transport all grain received. By an early date, carting-contracts were made for 30,000 tons. It received quantities of grain despatched daily by rail. Some consignments were sent to places close to the railway, and others to places at a greater distance. The contracts were well made, creditable to the officers concerned. The agency was capable of expanding until it should give to the Government an effective check upon the grain trade in the districts above the Ghâts, Bellary, Kurnul, and Cuddapah, so that the State might assist private enterprise in making the food-supply reach the people; prevent its being withheld from them; or import food.

A system of relief on a small scale had been set on foot before the end of October 1876. When, in November, the failure of the autumn monsoon became certain, the prospect of wide-spread distress caused the Government to undertake the expansion of relief works. It was deemed necessary to open small relief works in the heart of the drought-stricken area and among the villages. These works were everywhere sufficient, and kept under the Civil Officers. The Public Works Department was to advise and assist the Civil Officers; not to take actual charge of any of the works. All available officers within the Presidency were despatched to the distressed districts; and arrangements made to obtain, from other parts of India, Engineer Officers and Civil Engineers.

The relief works were largely resorted to :—

	Number of Relief Labourers.
1st November 1876	160,000
1st December „	310,000
15th „ „	656,000
31st „ „	982,000
7th January 1877	1,066,000
14th „ „	1,055,000

The last number was increased to 1,165,000 persons by 110,000 persons on gratuitous relief.

The relief wages were at first fixed at 2½ annas per diem for a man, the wages of women and children being proportionally less. In some places they were as high as 3 annas. In January they were reduced to 2 annas. Task-work was ordered, and the Civil Officers tried to enforce it; but to enforce it properly was, with fast-coming crowds of labourers, and without professional agency, impossible. In few places was it really enforced.

It was not deemed expedient to apply any test of admission, or to vest the Civil Officers with any discretion to reject applicants for relief on any such ground as this, that they seemed able to support themselves. The wages offered being low in reference to the high prices, it was thought that persons who came on the works must really be in want.

It was up to that time the belief of the authorities that the Government should charge itself with the duty of preventing mortality from starvation, and of alleviating distress. Nothing could exceed the solicitude of the Madras Government as regards the life, health, and welfare of the people.

Consideration was given to the commencement of large public works on which relief labour might be concentrated under professional supervision. The projected railway from Bellary towards the South Mahratta Country was proposed, but on reference to the Government of India difficulties were found to exist. The vigorous prosecution of the excavation of the canal to be carried along the east coast from the Pulicat Lake to the River Kistna was ordered. Efforts were made to obtain relief labourers from a distance for this work. The junction of this canal with the South Coast Canal below Madras was undertaken.

In the city of Madras and its neighbourhood the Government organised standing camps on a large scale for the reception of famine sufferers. To this city came thousands of wanderers, seekers for employment, and beggars of all sorts, accustomed to roam from town to town, imagining that the larger and the more distant a place is, the more likely is it to afford a haven. These people hoped to find work in the city of Madras, or to share in the private charities which were being dispensed by the rich Natives. Gathered from all the thoroughfares leading from the country to the capital, medical attendance was provided for them; but in despite, many died. Similar camps were ordered to be formed near Arcot, Vellor, and other towns in the interior.

The local authorities in the distant districts were instructed to establish centres of charitable relief, or to assist any effort made by benevolent persons. Private charity, everywhere invoked, responded to the call. Many Native gentlemen honourably distinguished themselves.

Up to the end of December 1876, the Madras Government expended—

	£
On relief	372,500
On purchase of grain	302,400
	£674,900

Other items, such as transport-agency and local purchases of grain, brought the total to three-quarters of a million sterling.

The Members of the Revenue Board were deputed to visit the most distressed districts, and to make reports to Government.

The instructions of the Government of India, dated the 16th January 1877, were received in the Madras Presidency on the 23rd.

The points to which attention was drawn were—

Every effort is to be made for the prevention of deaths by famine.

Severe economy in relief should be practised. Indiscriminate charity on the part of individuals is bad; on the part of a Government, worse. A Government has no better right in time of a scarcity than at other times to attempt the task of preventing all suffering to the poor.

The numbers on relief-works are so great that there is reason to fear that many persons must be employed who could sustain themselves.

The collection of such numbers should be restricted on works where labour is not exacted, supervision wanting, and people can obtain, for the asking, wages in money or in grain.
No time should be lost in giving to the people the means of employment on large public works, which need not always be in the distressed districts or near the homes of the people.
The Government may be driven to set up petty relief works near the homes of the people, but not until distress becomes extreme, or a state of famine has been reached.
There is great advantage in paying relief labour in money (not in grain). But if money payment is not practicable, there is no more objection to Government purchasing grain for payment than to its making purchases through the commissariat for the troops.
There is to be no interference of any kind on the part of Government with the object of reducing the price of food.
Inquiry should be made as to how far private trade, unfettered, can supply the wants of the country.
In certain localities remote from railways and large markets, which private trade is unable to reach, it may become necessary for Government to intervene.
The transport of grain by the trade, by railways, by roads in the interior, and by the sea-ports, should be carefully observed.

A question arose as to what degree of distress was to be prevented. Firstly, there might be distress which, sore and lamentable, can be borne without physical health being impaired, bodily power disabled, or life imperilled; and this the Government could not undertake to prevent. Secondly, there might be distress which, increasing slowly, must lead to death; and this the Government would to the utmost of its means prevent. If there should be a doubt, the person should have the benefit of the doubt.

It was understood that the purchasing of grain by Government from places beyond the Presidency was not approved of by the Government of India; that doubt was felt as to the need of purchasing grain for Government within the Presidency; and that the transport agency should be re-considered. Quantities of grain were being imported from Bombay, the countries beyond, and from the Nizam's dominions. The railway was carrying grain to the utmost extent of its power; the local markets were well supplied; the traders—European and Native—seemed confident that the grain would be forthcoming from distant places, and that they could import it to the remotest parts of the interior. There was no sign of country carriage and draught cattle failing; masses of grain were being piled on the seaboard at Madras. The purchasing of grain for Government ceased. The transport agency was restricted to the transporting of a limited quantity of grain (previously purchased by Government) to certain selected places, there to be held till further orders, and to certain limited engagements with contractors to supply carriage. The private grain trade continued to be extraordinarily active.

Observing at various railway-stations "blocks," or accumulations of grain for the distressed districts, Sir R. Temple obtained the services of a Royal Engineer Officer of the Railway Department, and ascertained that the quantity required for the whole of the distressed districts, including Maisur, amounting to 2,700 tons a day, could with exertion be carried by the two lines (the Madras and the Great Indian Peninsula Railway) from Bombay. The railway from the Bombay side worked satisfactorily; but the working system of the Madras Railway, though sufficient for the light traffic of ordinary times, was hardly able to bear up against the pressure of the heavy traffic. The Traffic Department of the Madras Railway, however, exerted itself commendably under these difficulties. The engine power on the Great Indian Peninsula and on the Madras Railway was found insufficient. Additional engines were obtained. To relieve the pressure, the doubling of the line as far as Arconum was approved of by the Government of India. To lessen the strain caused by the grain traffic to Maisur, the Madras Government desired that the Maisur traders should receive a part of their consignments on reduced rates through the port of Negapatam, instead of through Madras.

The question whether the three railways—the Great Indian Peninsula Railway, bringing grain from the north-west to Bellary and Kurnul; the Madras Railway, with its two branches, one towards Bellary and Kurnul, the other across the Peninsula to Beypor; the South of India Railway, from Negapatam to Trichinopoly, and thence to Madura and Tuticorin opposite Ceylon—could carry all the grain required for the distressed districts, lay at the foundation of all plans for a successful contest with the famine. The results seemed to justify the expectation, since realised, that the railways could, in combination, perform this task.

The country south of the right bank of the Tangabhadra showed that the reality of the drought and its consequences equalled the worst reports. The Irrigation Company's canal, which can irrigate 250,000 acres of autumn-crop lands, had given water to about 72,000 acres in the Kurnul and Cuddapah districts; but in some cases the ryots took the water too late to save their crops. The people have not as yet made use of the canal water in any adequate degree, for in previous years only 9,000 acres have on the average been irrigated; whereas the canal has water enough for many times that area of autumn-crop lands.

The questions forced on the mind of Sir Temple during the 14th to 21st of January 1877 in the most distressed districts were:—

Are the measures of relief sufficient to meet the trouble?

Are they more than sufficient with reference to the principle that the people should not be encouraged to resort unduly to State assistance, and that expenditure in excess of actual need should be prevented?

Are they in any degree open to the general objections set forth by the Government of India?

The grave consequences threatened by the drought were being successfully averted. In the interior of the Presidency, and in the most distressed districts above the Ghâts, there was no information of any mortality from starvation. Whatever distress had been threatened was being thoroughly relieved.

In some of the districts near Madras there was some unrelieved distress. This distress extended over nearly the whole of certain zamindari estates,* over some of the lower castes in parts of the districts of Chingleput and North Arkot, and affected many individuals. When the half-starved persons came forward at the centres of authority, or were picked up lying about, they were fully tended; but these occurrences might have been prevented had a proper system of village inspection and relief been ordered. These defects, when compared with the magnitude of the affairs, did not detract from the general result, which amounted to this, that by the beginning of January 1877 the serious distress which threatened to rise in the Madras Presidency during December 1876 was effectually kept down.

* Verkatagiri.
Kalastri.
Karvetnagar.

Then followed these questions :—

Whether the relief measures were more than sufficient.

Whether they encouraged the people to resort unduly to State assistance.

Whether they involved an expenditure beyond actual necessity.

Without disparaging the foresight, thoughtfulness, and anxiety of the Government, Sir R. Temple was constrained to answer in the affirmative.

On behalf of the Madras Government, one Member of the Board of Revenue after another had temporarily visited the most distressed districts, consulted with the local officers, and made reports to the Government. Whatever authority they indirectly exercised was undefined and insufficient for urgent affairs. There was no superior authority resident in the scene of trouble vested with power and imbued with personal responsibility conducive to thoughtful administration. The District Collectors had not enough of guidance; and junior Civil Officers in remote sub-divisions were obliged to confront extraordinary difficulties, to incur large expense, and to commit the Government to important decisions.

Another difficulty consisted in the great area of the jurisdictions under each District Collector.

If, at the outset, some official empowered to issue orders on behalf of Government, directly in communication with the Government, had been deputed to the distressed districts, the Government of Madras would probably have succeeded in systematising relief operations and in securing economical administration.

The following table shows the relief given in parts of the Presidencies of Madras and Bombay :—

Second week of January 1877.	Population.	Number on relief works and on gratuitous relief.	Percentage on population.
Madras Presidency Districts.			
Bellary	1,688,000	460,000	27
Kurnul	960,000	337,000	35
Cuddapah	1,351,000	211,000	16
Bombay Presidency Districts.			
Sholapur	718,000	93,000	13
Kaladgi	816,000	27,000	3
Part of Puna	318,000	47,000	11

The table points to the conclusion that there was excess in the relief in Bellary and Kurnul.[1]

According to the experience of all former famines in India, the numbers in January would be surpassed by those of the succeeding months; would increase month by month till May, or till the south-west monsoon (expected in June) should arrive. If these districts showed a million of recipients of relief in January, what would they show in May?

In January and February 1874, the worst districts of North Bengal and Bahar hardly showed more than a few thousand recipients of relief. The numbers remained low till March; rose rapidly, and reached their culminating point in April. There is a difference of at least one month in season between Bahar and Bengal and the Madras Presidency, which might cause famine to declare itself a month earlier in Madras. Still, this would not account for the haste with which the famine seemed to be advancing in Bellary, Kurnul, and Cuddapah.

Was there any preventible cause? A sojourn of a few days in the districts of Bellary and Kurnul; a visit to Cuddapah; a careful inspection, person by person, of relief labourers in gangs in various parts of the country; an examination of some of the relief works; and much conversation with officers, European and Native, served to convince Sir R. Temple that causes existed. They were—

Offering work close to the homes of the people;
Rendering the work light and easy;
Making the wages worth having, irrespective of bare subsistence;
Admitting all comers, without any question as to whether they could sustain themselves;
Allowing all applications for employment, without exception.

[1] Before this can be answered, it must be shown that the intensity of the famine in Bombay was equal to that in Madras. See pages 20 and 37.

At that time, a rustic family could earn on the relief works Rs. 10* a month. They would not, perhaps, seize the opportunity if the work were hard and a long way off; but they would if it were easy and at hand. Thus a temptation was presented, not only to the lower classes and to the field labourers, but even to the ryots and peasant-proprietors who pay land-tax to Government. Undoubtedly demoralisation was creeping over the rural community.

	Rs.
* Man	3¾
Wife	2¾
Two elder children . . .	3½

The wages were, at the outset, supposed to be low relatively to the dear prices of food; but were not really low, when every member of the family was able to earn them close at home. The monthly earnings of a poor family at this time, on the relief works, was equal to the salary in ordinary times of the lowest-paid classes who can read and write.

The numbers of relief labourers had swelled so rapidly that it would have been impossible to regulate them, even if a strong establishment had existed. Those officers in civil employ within the Presidency who could be spared had been employed. Officers from the Madras army could not be spared. Some officers from the Bengal army and from the Bengal Public Works Department had been sent for, but had not arrived. The European relief officers and the District Engineers, being few in number, did what they could, but were obliged to trust in the main to their Native subordinates—Native Deputy Collectors, Tahsildars, and Revenue Inspectors. Without any disparagement of the merits of these Native officials in the ordinary duties for which they had been trained, and with all acknowledgment of the good service rendered by some, Sir R. Temple was obliged to state that they were deficient in supervising relief work. They admitted all comers, without hindrance, and permitted them to think that the State would feed everybody. To wait the arrival of the additional officers, and to enforce such a degree of task-work as might be practicable, constituted all that could be done.

In inviting projects for large public works to employ relief-labour, there is the danger that proposals may be made for executing projects previously rejected on general grounds, to which projects labourers not in need might be attracted, and that the occasion of relief might be made use of to carry out unnecessary works, entailing needless expense. This objection is obviated if those only are admitted who really need relief, and if regard be paid to the selection of projects. The danger real,—it can be avoided, and does not counteract the advantages of employing relief labourers on large public works.

There were three things which could be done by the unprofessional civil establishments—moving the gangs to a little distance from their homes and concentrating them on supervised works; stopping the influx of new applicants flocking in by tens of thousands week by week; eliminating from the gangs those manifestly able to sustain themselves.

The Madras Government, satisfied that the approach of the famine had been repelled, was prepared to adopt further measures for systematising relief operations. On the 21st of January Sir R. Temple laid before it proposals for—

Stopping all fresh admissions to relief works in Bellary, Kurnul, and Cuddapah, save under an order from an official;

Examining every gang, person by person, with the view of discharging every one not in need of State-relief;

Reducing the relief wage for men from 2 annas to 1½ annas per diem; and proportionately for women and children.

At the price of common grain (one rupee for 16 lbs.), the 1½ annas rate would enable a man to buy 1 lb. of grain per diem, and to have a margin for condiments.

These views were accepted by the Madras Government on the 31st January, and orders issued. Instead of the wage of 1½ annas per diem, the Madras Government ordered that the wage should be fixed for all relief labourers, not under professional supervision, at an amount representing the price of 1 lb. a day of grain, plus ½ anna for condiments. This rate was as economical as mine, but it had the disadvantage that doubts would arise as to what kind of grain was meant, that time would be lost in discussion; and that the reduction of wage would in some localities fail to take effect. All this actually happened. The reduction did not take effect till the end of February, and in many places it became the 1½ annas rate, first recommended.

For those relief labourers employed by the Public Works Department, working up to the departmental standard, a rate of 2 annas per diem was allowed.

The Government of India was pleased to despatch a number of covenanted civil servants of the Bengal Presidency, who had experience of the famine of 1874, for service in the Madras Presidency.

About the 24th of January 1877 the instructions of the Government of India were published throughout the Madras Presidency. Their appearance, of course, imparted authoritative weight to the systematising of the relief operations and to the preventing of waste.

It was important to provide for the inspection of the poorer classes in the distressed districts, from village to village, from house to house. The orders of the Madras Government were that relief camps for destitute persons should be formed at the principal places, and that the residuum of such persons should be relieved by the village headmen under the district authorities. Sir R. Temple, on the 16th January, caused a memorandum to be drawn up of the manner in which the Kurnul district might be divided into circles and sub-circles for the inspection of every house in every village, for the purpose of searching out cases of destitution, and transmitted it to the Madras Government; on the 19th January, drew attention to the importance of impressing upon the village headmen their responsibility for bringing

before the nearest authority every case of dangerous distress; on the 8th February, represented the importance of the subject, observing that experience showed that individuals might be suffering in silence and composing themselves, without complaining, for death; pointed out the advantages which the ryotwari system—with its officials, tahsildars, and revenue inspectors in each of the subdivisions of the district, with the hereditary headmen and accountants in every village—offered.[1]

He visited the distressed districts, Chingleput, North Arcot, Salem, Coimbator, Trichinopoly, Madura, and Tinnevelly, below the Ghâts. The autumn and winter harvests were less injured; the promise of the spring harvest was better; the resources of the people were greater; indiscriminate relief had not prevailed; the local officers had been cautious; the people had been taught self-control; the recipients of relief were few, and their number did not seem likely to increase.

In December 1876 the Revenue Board had made an estimate of the cost of famine in the Madras Presidency, which showed an expenditure of nearly three and a half millions sterling—3,410,000*l.*, exclusive of losses of revenue. But the Government did not accept this, as it was formed on rough data. On the data furnished by local authority, the number on relief-works assumed for February 1877 was 1,228,000 persons, for March 1,480,000, for April 1,840,000, for May 1,530,000, for June 795,000, and for July 310,000. It was thought advisable to provide for large numbers of persons on gratuitous relief, which numbers might rise to 700,000 in the month of June. The result was a total estimated cost of 2,920,000*l.*, being 490,000*l.* (or a half million) less than the first rough estimate.

Sir R. Temple returned to the districts above the Ghâts, Bellary, Kurnul, and Cuddapah, to see whether the orders of the Madras Government regarding the systematisation of relief were being followed.[2] During this time he visited many localities in the interior; examined relief works; inspected relief gangs; examined upwards of one hundred thousand relief labourers of both sexes and of all ages; conferred with most of the relief officers, European and Native, and saw as much as possible of the humbler classes not upon relief. By this time European officers, military and other, from distant parts of India, and civil servants, experienced in the famine of 1874, were arriving. Their presence greatly strengthened the supervision and control. The local officers exerted themselves to restrict relief to those in absolute need; to reject those making a convenience of State bounty; and to extend discriminating charity to real misery. The increased supervision brought to light various sorts of frauds, malpractices, and false returns. The relief works were systematically arranged to take the relief labourers to some reasonable distance from their homes, and to make the tasks irksome, so as to test the reality of their need. The manner in which the gangs thinned their ranks, when required to move away, to perform a day's march, to render a fixed tale of work, to bivouac, or, to encamp in the open fields, was remarkable. Many gangs, on receiving orders which would have been obeyed by persons really in need, struck work. Finding themselves unable to dictate, some would come back after a while; but many stayed away altogether. Other gangs, on being set an augmented task, would cease working and run off, shouting that the burden was unjust, and that Government should allow them to continue in ease. The effect was to bring down the numbers week by week. In Bellary, Kurnul, and Cuddapah, the highest total of persons on relief works amounted in January to 950,000; in February, to 540,000; and in March, to 490,000.

Inquiry was made as to what the relief labourers were doing with their wages. The sales of grain at the shops established near the gangs on the works appeared to be less than the cash disbursements in relief wages. It was inferred that the labourers were hoarding their wages.

In some gangs there were numbers of women whose husbands or relatives were not on the works, but were at home following some pursuits of their own. In such cases it was inferred that, while the husbands were following their professions, the wives were labouring on the relief works to eke out their income.

It was satisfactory to find that the robberies and thefts, rife from November to January, had to a great extent ceased, and that the state of crime against property was not much above its ordinary level. To this remark the frontier of Kurnul, near the Kistna, certain parts of Salem, and other localities, formed exceptions.

It was found that the village headmen had received strict injunctions to inspect, report, or to relieve; that they had received advances of funds; that circles had been formed, each containing a few villages, a special relief centre being in the midst; that there was a larger relief centre at the head-quarters of each sub-division comprising a cluster of circles. Still, among the villages, and sometimes among the gangs of relief-labourers, he found wretched individuals; and inquiry showed that the poor people were sharing their wages with infirm people at home.

Everywhere sickness and mortality, past or present, showed their sad effects. Everywhere cholera and small-pox, accounted for by unwholesome drinking-water and insanitary habits, met the view. But at that time, and in that part of the country, those who succumbed under insufficient nourishment, perished through their own default, for everywhere relief was proffered.

Sir R. Temple recommended that the earth work on the projected railway from Bellary towards Dharwar, and on the branch connecting Chingleput near Madras with Conjeveram, should be taken in hand for employing relief-labourers, on the understanding that the

[1] See page 54.
[2] This second visit lasted from the beginning to the end of February 1877.

Government should not be pledged as to the time and manner of completing the lines. To this recommendation the Government of India acceded.

On the 27th February, Sir R. Temple went to the Nellor district, and was struck by the excellence of the East Coast Canal, and its suitableness for the extensive employment of relief labour. But, whereas the canal could employ 90,000 labourers, only 30,000 were then employed, and 60,000 were wanted. At short distances from the canal, there were 55,000 persons employed on petty works under the Civil Officers. These people were unwilling to exchange their comfortable work for labour on the canal. The Collector arranged to draft 20,000 selected persons from his village works to the canal; and the Madras Government ordered to it 40,000 persons from the relief gangs in Bellary and Kurnul.

Apart from the defect above noticed, the administration of relief in this district seemed to have been more careful and economical than in the districts above the Ghat; but there were reasons to fear that the village-inspection and relief were not sufficiently carried out.

Sir R. Temple again visited the North Arcot district, where individual cases of severe distress were most likely to be found. Although the relief measures were sufficient in most parts of the district, still in some of the large zamindari estates much unrelieved distress still existed.

Favourable reports had been received of the districts of Madura and Tinnevelly. On visiting the districts of Salem and Coimbator, he found that carefulness and economy, with a due regard to the people, had been practised and steadily maintained.

He examined the large relief-camps here, as well as in the neighbourhood of Madras. Their internal economy was excellent; but though largely attended, they were unpopular with the poorest classes, and were sometimes avoided by destitute persons. One cause seemed to be the insufficient provision for the separation of the better castes from the casteless people, and for other social customs which the humblest hold dear. This was represented to the Madras Government.

While some of the weavers habituated to coarse fabrics could labour on the relief-works, those who wove fine stuffs could not. For the weavers of fine fabrics, suffering severe privations, light relief work should be provided. The Madras Government approved of this.

He then proceeded to Madras, to confer with the Government regarding the sufficiency or otherwise of the reduced relief-wage. The Sanitary Commissioner of Madras had raised objections to the reduced scale of wages for relief labour, based on theoretical and scientific grounds, and supported by his previous experience of the people in Southern India. It was thought by him and others that the wage ought to be raised to the rate at which it had stood in the beginning of January; Sir R. Temple, that the reduced wage had not been tried, and that it ought to be. This view was accepted. It was ordered that any person in the relief gangs found in a condition below par should be specially treated, either by extra allowance or by diminution of task.

Children unfit for labour, brought to work by relief-labourers, received a special allowance. This concession, on which the Madras Government laid great stress, obviated a risk otherwise incurred when the relief wage was reduced.

From the wages in ordinary times of the labouring village poor, and from the prices of food grains, a man can hardly get more than 1 ℔. a day besides extras. It may be that more liberal terms have formerly been allowed; but that is no reason why these economical terms should not be introduced. Opinion at Madras was affected by the wretched condition of the wanderers who strayed into the capital in quest of food, needing generous sustenance for a time. These were cases of special distress.

On the 25th March, he entered the district of Bellary. Both in that district and in Kurnul the engineering establishment was still far from being adequately employed in the supervision of relief works.

He examined the progress made with village-inspection and relief. Much improvement was perceptible. Those who could move were resorting to relief-centres, established amidst the circles of inspection into which the villages had been grouped; those who could not, were being treated in their villages by the village-headmen.

On this occasion Sir R. Temple was accompanied by Dr. S. Townsend, the Sanitary Commissioner to the Government of India, to judge of the physical condition of the relief labourers, and to estimate the objections raised by the Sanitary Commissioner of Madras. After inspecting nearly 40,000 of these people in different parts of the country, Dr. Townsend stated that their physical condition was fairly good, and that there were no grounds for raising the wages.[1]

Still it seems to be supposed that there is some connexion between the mortality among the recipients of gratuitous relief and the reduced relief-wages; if persons die at the gratuitous relief camps, or are picked up in a famishing state on the roads, it is imagined to be a proof that the relief-wages must be too low. But there is no connexion whatever between the two cases. Those who are found starving are not, and have never been, relief labourers. Most of them are not accustomed, or are not able, to work; and this is the reason why they have been admitted to gratuitous relief. Any inference drawn from these conditions would be irrelevant if applied to relief-labourers. These poor people have sunk into danger either because they themselves failed to apply for charitable aid, or because those who ought to have brought them for gratuitous relief failed to do so.

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[1] See page 120.

Sir R. Temple re-visited the Salem district, in parts of which severe distress existed, following two successive years of drought, and where the village inspection and relief required further examination, and proceeded to Negapatam and to the Madura district, passing through a critical period of the drought. In the southern peninsula, relief is afforded by the temporary emigration of abnormally large numbers to the coffee-plantations and the labour markets of Ceylon.

The mission lasted from the third week in January (1877) to the fourth week of April. Within the Madras Presidency 10 districts, 46 "taluks" or local divisions of districts, and five large zamindaris, were visited; 132,500 relief labourers of both sexes passed in review, person by person, of whom 65,000 were found to be good in physical condition, 47,000 middling, 16,700 indifferent, and 3,800 bad; 5,300 miles travelled over, of which 4,420 were by rail and 880 by other means of travelling.

The Madras Revenue Authorities considered that very large remissions of revenue would be required; and that it would be inexpedient to hold in suspense any part of the land-revenue.[1]

The Madras land-revenue has been moderately assessed, and falls comparatively light on "dry" lands; and an ordinary ryot might well afford to pay the arrear land-revenue of a bad year out of his profits, if the succeeding two years shall be good. The circumstance that lands irrigated from wells are taxed at "dry" or unirrigated rates of land-revenue, greatly strengthens the position of ryots on "dry" lands; for crops irrigated by wells yield an outturn on which the assessment is light.

But a portion of the whole land is held by very petty ryots, whose standard of living is low, and who might be unable to pay up the arrears of their land-tax in full. Sir R. Temple considered that two-thirds of the land-revenue, not collected this year, might be paid by the ryots during the two succeeding years, and that the arrear land-revenue of the present year should be kept in suspense, and no remission promised on "dry" lands, in order that the public treasury might have a chance of recovering part of the arrears, if the future seasons should be favourable.

The Government of Madras held that this view could not be accepted, and that the practice of Northern India is not applicable to the different circumstances of Madras. In Bombay, where, as in Madras, the land is held on ryotwari (petty proprietary) tenure, the Government accepted this view, so far that the arrears of the present year in the famine-tracts of Bombay are in part "remitted" and in part "suspended" for collection in future years if seasons permit. The Government of India decided that the question of remitting or suspending the land revenue should be left to the discretion of the Local Governments; and the latest estimate of the Madras Board of Revenue is that 143 lakhs of rupees (1,430,000*l.*) of land revenue must be remitted on account of the recent failure of harvests.

The state of affairs on the 14th April 1877 may be summarised:—

	Persons.
Third week in March 1877—	
On relief works	664,000
On gratuitous relief	97,000
Total	761,000
1st April 1877—	
On relief works	695,000
On gratuitous relief	115,000
Total	810,000

Upon the works, the majority need relief. There are among them thousands of persons not absolutely in want, who would leave the works if only severe taskwork could be enforced, or if they could be drafted to large public works under professional control.

The exaction of task work is probably as good as can be expected in works under Civil Officers and unprofessional establishments. In some of the districts below the Ghâts it has been enforced.

The employing of relief labourers on large public works has failed in the Madras Presidency. The engineering establishments of the Public Works Department have not been utilised enough. The impression produced on the people by the liberal manner in which petty works among the villages were in the beginning opened intensified their distaste for large public works. This overwhelmed the authorities with crowds demanding instant attention and distracting thought from systematisation.

If the Public Works establishments had been perfectly utilised; if the fullest restrictiveness had been practised as to petty civil works; if the officers had been able to systematise,—still it must be allowed that the distressed districts were unfortunate in having so few large projects suited for relief labour.

Despite the persistent efforts which have been made, the system of village relief and house-to-house inspection is far from perfect. Disappointment may be felt at these shortcomings under a ryotwari system which offers such advantages. Much was to be expected from the hereditary headmen and the hereditary accountants in the villages.

[1] See page 112.

The following statement speaks for itself :—

Distressed Districts.	Total numbers on relief works and on gratuitous relief during	Percentage of persons receiving relief of both kinds on the total population of the district.
Madras Presidency—	First Week of April.	
Bellary	269,000	17 per cent.
Kurnul	236,000	24½ „
Cuddapah	80,000	6 „
Nellor	69,000	5 „
Chingleput (inclusive of Madras city)	29,000	2 „
North Arcot	32,000	1½ „
Salem	68,000	3 „
Coimbator	27,000	1⅔ „
Madura	12,000	½ „
Tinnevelly	3,000	⅕ „
Bombay Presidency—	Third Week of March.	
Sholapor	49,956	7 „
Kaladgi	27,120	3½ „
Part of Puna	57,691	6½ „

Sir R. Temple drew attention to the high percentage which prevailed in Kurnul.

The physical condition of the people is fairly good—better than was expected. An impression seems to be gaining acceptance that the agricultural classes have more self-sustaining power than was anticipated. It is thought that the relief-wages have not been entirely spent in buying food, but have in part been hoarded. There is still lamentable mortality in or about Madras itself, and in some places below the Ghât mountains, which, though caused by disease, is traceable to insufficient nourishment. The death-rate among the people received into the relief camps in and about the city of Madras continues extraordinarily high.

The moral effect of the relief operations cannot be overlooked,—they must bind the people to the Government by ties of gratitude and respect[1]; but there remains the question of demoralisation. Admitting the efforts of the cultivators to save their crops, they have failed to do all that they might have done to retrieve their misfortunes. The constant recurrence of scarcity in some part of the Madras Presidency, and the quickening of the sense of responsibility on the part of Government, may have taught the people to regard the State as a power on which they may rely for sustenance, whether they do their best for themselves or not. The feeling must have been evoked by the liberal manner in which relief operations were begun in Bellary, Kurnul, and Cuddapah towards the end of 1876. Demoralisation did creep, not only into the labouring classes, but into the peasant proprietary.

The spring harvest in all the distressed districts save Bellary and Kurnul has been tolerably good. It has added opportunely to the food-supply of the year. Its productiveness is mainly due to the wells.[2] Whilst most of the tanks or lakes have remained empty, the wells have been the means of drawing water from the subterranean reservoirs. In most parts of the Madras Presidency, wells, deepened, will produce water, despite a drought of one year, and probably of two years. The experience of 1876 and 1877 has imparted much impetus to well-sinking throughout the country. The circumstances of 1877 vindicate the policy of the Madras revenue system, which imposes no additional land-tax on fields watered by wells dug by the ryots themselves.

The system of tanks, on which so much labour and capital have been expended, have been almost exhausted by one year of drought. Whether many of them could be made to hold a quantity of water that would outlast a drought of one or two years' duration, is an engineering question. This point proved by the experience of 1877 to be so important, a notice of it cannot be out of place.

The grain trade has been most healthy, from the seaports to the central marts, from the railways to the roads, from the markets and depôts to the village booths. This activity was vigorously exhibited during the early months of 1877, and to it must be attributed the steadiness of prices and their tendency to fall rather than to rise as the season of trouble advanced. But during March and April the importation of grain by sea to Madras, and by rail to the northern frontier, declined. The accumulated bags of grain housed in barns near the Madras beach seemed so unmanageable in quantity, that men wondered whether the railway would be able to carry away such an amount within the allotted time. But various calculations concurred in pointing to 2,700 tons a day as the quantity of grain required for the distressed district , and every effort was put forth to secure provision accordingly. The average quantity carried daily was under 2,000 tons. Notwithstanding this, the markets—great and small—the entrepôts and depôts, in the interior of the country continued well supplied with grain; and no apprehension was expressed by traders. The inference is, that the stocks of grain within the Madras Presidency, and the internal resources of the country, were greater than the original anticipation.

[1] See page 62.

[2] Mr. Caird (*Nineteenth Century*, September 1879) says :—"In Baroda, every one has his well; no other irrigation in India can compare with it."

From the beginning of the famine to the end of March 1877, the food grain brought into the Madras Presidency amounted to about 535,000 tons. This supply was drawn from—

	Tons.
By sea into Madras, Tuticorin, and other East Coast ports from Bengal, Burma, Orissa, and Ganjam	356,000
By sea into Beypor and other West Coast ports	118,000
By the Great Indian Peninsula Railway, from Northern and Central India into the Madras Presidency	61,000
Total tons ...	535,000[1]

Scarcity was felt in the interior of the country before imported grain began to arrive.

The earliest movement of the grain trade was the transport of grain by rail from old stocks on the coast into the interior. Importations began in November; culminated in January with a total of 101,000 tons; slackened in February, when the total was 80,000 tons; and diminished in March.

Of this, 30,000 tons were imported on Government account; the rest, 505,000 tons in all, was brought into the country by private trade. The imported grain was distributed by the Madras railways into the interior of the country, thus—

	Tons.
Bellary, Cuddapah, and Kurnul received	147,000
The Maisur Province	81,000
The districts of North Arcot, Salem, Coimbator	73,000
The districts of Chingleput and Malabar	10,000
TOTAL	311,000

Of this, some was sent into the Nizam's territory, and some distributed by the South India Railway, by cart, by canal-boat through the coast districts. There were considerable grain-imports by cart from the southern ports of the Bombay Presidency, and from Raichor and places in the Nizam's territory into Kurnul.

If the imported grain did not come generally into consumption before November, the grain carried by rail into the interior before the end of March was sufficient to feed 3¾ millions of people for six months, or 25 per cent. of the population of the distressed tracts of Madras and Maisur from the 1st November to the end of April 1877. This grain-importation, distributed by railway and by cart over the country, supplied all requirements. The price of food-grain at the marts since the 1st January was less than 8 sírs (16 lbs.) per rupee; while at the marts of the interior prices were rarely so high as 7 sírs (14 lbs.).

The southern Peninsula of India has been, or is, being denuded, not only of its forests, but also of its jungles, its brushwood, its groves, its trees. The denudation has been going on near the sources and the upper courses of the many rivers which water the country. With the progress of coffee-planting, and with the assertion of communal rights on behalf of the people, the utmost vigilance will be needed to keep it within bounds. If it were to proceed unchecked, there would be imminent danger of the rivers running dry by reason of the catchment basins and the drainage areas near their sources being rainless. As these rivers supply the great canal systems, this danger has only to be mentioned to be felt. The same argument applies to the tanks, second to the canals in usefulness. It has been seen how precarious is their position even with one year's drought. The progress of the country causes the price of timber and of firewood to rise. The introduction of railways has greatly augmented the demand for fuel. Strong temptations are thus offered to the people to fell; to bring every log to market; to dig out the very roots of the jungle. There are stories to be heard of groves and hedgerows and scattered trees being cut for sale. In the midst of cultivated tracts there are to be seen bare sterile hill-sides, said to have been forest-clad within living memory. Beyond the Ghâts in Bellary and Kurnul, the treeless, shrubless aspect of the country is wonderful, but melancholy. These are the districts where famine has been epidemic and scarcity endemic. The numerous groves planted in the last generation were made over many years ago to the villagers, and have been mostly cut down. Trees and forests must be thinned and cut for man's use, but they need never be exhausted. There is reason to hope that the waste lands, so extensive, might be kept more thickly wooded, and that large areas naked and void of vegetation would, if reserved, become covered with trees.

We forcibly and positively learn that it is necessary—

to determine beforehand the large public works upon which relief-labour can be employed, and task-work exacted;

to notify to the Civil Officers the particular public works to which the relief-labourers in each distressed district are to be drafted;

to organise an engineering staff in readiness for undertaking vigorously these particular public works, and to prepare for devoting to this purpose all the professional establishments obtainable;

to prohibit absolutely, in the beginning of the distress, the opening of petty works under Civil Officers or non-professional establishments among the villages close to the homes of the people;

to refuse relief to strong able-bodied persons of both sexes, save employment on the large public works;

[1] Details of this are given in page 167 of this report.

to allow petty village works to be opened only when severe and widespread distress has declared itself at a comparatively advanced stage in any district, and then to reject all save those who cannot reasonably be expected to proceed to the large public works, *e. g.*, the weakly, the sickly, the advanced in life;
to insist upon a systematic inspection by responsible Civil Officers of all relief gangs, person by person, to see whether they are all in need of State assistance, and to note whether their physical condition improves or deteriorates, and whether their wages are too much or too little;
to reject every applicant for relief, whether on a public work or on other works, who can be shown to be able to support himself;
to take care that in various grades there are provided beforehand such establishments as may be able to exact tasks on the petty works near the villages;
to keep the wages on relief works at the lowest rate compatible with the health of the labourers, to prevent demoralisation of the people;
to insist on inspection being instituted from village to village in the distressed districts, for the discovery and treatment of the casual cases of dangerous distress,—this house-to-house inspection to be stricter and stricter as the season of distress advances;
to organise relief camps on a sufficient scale near large towns, at central spots where high roads converge, for the reception of the destitute, who should be compelled to live there temporarily as a proof of the sincerity of their appeal for help; and to adapt the internal arrangements of these camps as much as possible to the caste feelings of the people;
to encourage private charity, but to explain to benevolent persons that they can best serve the public by making their contribution to some public organised institutions;
to allow and encourage smaller relief centres in the interior of the districts as distress advances, to which all recipients of gratuitous relief who can move must resort;
to provide for the destitute,—those unable to move being cared for in the villages;
to arrange relief charges territorially, in compact and manageable areas, so that no jurisdiction shall be too large for the supervision either of the District Collector or of an officer of the status of a Collector;
to depute, either to the whole distressed territory or to the most distressed districts, some officer, with full instructions as to the policy to be pursued in relief, and with power to direct and control on the spot the relief operations, subject to the direct orders of the Government itself;
to postpone relief operations as long as possible, while maintaining full preparedness against any emergency that may arise; and to teach them, by annexing to forms of relief such conditions as the people can reasonably bear, that State support is not a matter of course, but only permissible;
to make forecast of the State expenditure required for relief, to revise them at short intervals, mindful that the questions relating to the effect of scarcity upon the condition of the people are recondite and that the event may be worse than the anticipation, or better;
to watch the rising of prices in the beginning of scarcity to rates even three times as dear as ordinary rates; to withstand the alarms excited among the people by such symptoms, in the confidence that, as long as prices are cheaper elsewhere, the dearness attracts supplies through private trade;
to contemplate purchases by Government of grain in distant markets only under necessity when there is no prospect of supply on the spot, but to be ready to buy grain from dealers who will deliver it at the places where it may be required to pay relief labourers;
to reject all proposals for placing Government grain in any positions within easy reach of railways or other communications;
to pay relief labour in cash as long as the labourers can buy food with their wages, and to postpone as long as possible paying in grain, because any purchases of grain by Government tend to disconcert private trade and to raise undefined apprehensions;
to contemplate the possibility of being obliged to organise Government transport establishments, but to avoid as long as possible calling them into action or placing them in the field, lest misapprehension should be caused in the trade;
to publish from week to week, information regarding the current prices, the importation of grain from without, the varying state of the distressed districts, the carrying-power of the railways or other transport agencies;
to maintain on the great railway lines a moderate, though adequate, reserve of engine power, so as to enable the railways to meet emergent requirements:
to consider the possibility of ensuring in the irrigation tanks enough water for at least two years;
to stimulate the ryots to sink wells, and to assist the people with advances of money for this purpose;
to diligently inquire whether the failure of seasons, so chronic in Southern India, can be traced in any degree to preventible causes;
to conserve existing forests and woods, to study the reproduction of extinct jungle, to preserve the groves, to make plantations, to encourage the growth of timber trees and of brushwood;
to watch and guard the forests near the sources of all rivers.

THE VISIT OF HIS EXCELLENCY THE VICEROY
TO
THE PRESIDENCY OF MADRAS AND THE PROVINCE OF MAISUR.[1]

The Secretary of State, in his telegram of the 31st July 1877, to the Viceroy, stated:—

"We strongly feel that, if your health enables you to do it, an immediate or very early visit by you to Madras, as you suggest, will be of great possible public service. It will settle many controversies, will dispose of all difficulties of jurisdiction, will enable you when you return to leave settled principles behind you, and will greatly tend to satisfy public mind."

Minute of the 12th August 1877, by His Excellency the Viceroy:—

1. The summer rains of June and July 1877 have now failed over many of the districts in Southern India, where the rainfall of 1876 was lamentably deficient. The severity of the situation is increased by the scantiness of the rainfall in Western and Northern India during the past six weeks.

2. The time has not come for the Government of India to review the famine operations of the year 1876-77, for the famine is still at its worst. A short notice of the failure of last year's harvests, of the misfortunes caused, and of the relief operations undertaken, is necessary to a proper understanding of the gravity of the situation.

3. The summer rains (south-west monsoon) of 1876 were extremely scanty over tracts of the Presidencies of Madras and Bombay, to the State of Hyderabad, and to the Province of Maisur. Over these tracts, which contain a population of 26 millions, the summer rains yield the main rainfall of the year; they fill the irrigation tanks, on which depends the safety of the food crops. In the above-mentioned districts, the chief food crops of 1876 failed by reason of the shortness of the summer rains; but in the rest of the Madras country the main rainfall, which comes with the October rains (north-east monsoon), was also very deficient, and the chief food-crops failed. The fate of the Madras crops was thus partially in doubt until the middle of November 1876.

4. Last year the area of failure was so vast that famine prices were inevitable; and by the month of December 1876, food-grains in Southern India were three times as dear as in ordinary years. The calamity pressed with special weight on some of the stricken districts (notably Bellary, Sholapur, parts of the Carnatic, and of Maisur), because the crops of one, or even two, preceding years, had been short. In such districts food-stocks were lower than usual, and the people had less money to buy food brought from a distance. In Bengal, Burma, Central and Northern India, the crops were happily good; food-stocks were large; and grain was plentiful to supply the stricken districts, if it could be carried thither, and if the people could afford to pay for it.

5. The policy of the Government of India was—to give all possible facilities for the transport of grain to distressed districts; to abstain from interference with the grain trade, as long as trade was active; to give relief wages to the destitute who would labour on public works; to relieve gratuitously, under trustworthy supervision, the helpless poor, when famine became extreme; and to avert death from starvation by the employment of all means open to the resources of the State; but to discharge this duty at the lowest cost compatible with the preservation of human life. In the autumn of 1876, no general instructions were issued by the Government of India for the management of serious and wide-spread famine; nor until November was it certain, from the reports received by the Supreme Government, that positive famine was impending in the Madras districts.

6. From the month of September 1876 a large importation of grain from Northern India and Bengal into the distressed tracts began; and this traffic rapidly increased till, in the month of December, grain was landed by sea at Madras, and was also consigned by railway, from the west, through Raichur (the western limit of the Madras Railway), in much larger quantities than the railways could distribute, to the districts of the Madras Presidency and of the Maisur Province. From December up to the 12th August 1877, private traders have kept consigning, month by month, into the interior of the famine districts more grain than the railways from Madras, Beypur, Negapatam, and Raichur have been able to carry. This grain has come from Bengal, Burma, the Panjab, the North-Western Provinces, Central India, and Sind. Government has done much to facilitate the traffic; and on one occasion only have Government operations interfered with private trade, namely, when 30,000 tons of grain were bought by the Madras Government, at the beginning of the famine, and carried into the interior of the country. To this extent the railway and cart power of the country was temporarily occupied by Government, to the exclusion of private trade. These proceedings of the Madras Government were disapproved of by the Government of India. Prices have been very dear; but from nowhere, until the 23rd of July, have we received reports that food cannot be had in the bazars by those who can afford to pay for it. In the worst districts the imported food has sufficed for the needs of about one-third of the total population. The remaining two-thirds in such districts, and a much larger proportion in the less severely afflicted tracts, have subsisted on old stocks and on the yield of the petty crops that have been harvested even

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[1] His Excellency the Viceroy started from Simla for Madras on the 16th August 1877, and completed his tour in Southern India on the 27th September 1877.
See Letter No. 37 of the 27th September 1877 for the Governor General.

during this year of famine. The importation of grain by railway into the interior has not yet exceeded an average of about—

2,200 tons a day into the interior of Madras and Maisur;
1,000 tons „ „ „ of the Bombay Presidency.

These figures do not include the large quantities of grain distributed in the interior by road or canal, from the port of Madras, and from the lesser ports on the Coromandel, Malabar, and Southern Mahratta coasts. There are in Central and Northern India, and in Bengal, large stocks of food, ready to go forward to the famine districts as soon as the railways can carry them.

7. At the outset of the famine operations there was general failure to employ the destitute poor on properly-managed and useful public works. During November and December 1876, hundreds of thousands of people sought, and obtained, relief wages on works not of the highest utility, on which there was no adequate professional supervision. For this result I fear that the orders of the Government of India, enjoining the employment of the people on petty works near their homes, were in some degree responsible. In the Government Despatch[1] conveying instructions for Sir Richard Temple's mission to the famine country, it was mentioned that small and well-supervised local relief works might properly be opened at the beginning of a period of distress, so long as there was doubt regarding the extent of scarcity; but that, when measures of relief on a large scale became clearly necessary, great public works of a permanently useful type should be opened for the employment of relief labourers. The experience of the present famine—the friction, distress, and loss caused by the transfer of labourers from small to large works during February 1877 in the Bombay Presidency—and the difficulty of moving to large useful works, relief labourers in Madras—has since convinced me of the impolicy of opening petty local relief works during the early stages of a scarcity. It was in December 1876 laid down that relief labourers should be employed, to the utmost extent possible, on large useful works, under the direction of competent engineers. Before those orders had reached the local officers,

1,050,000 persons in the Madras districts,
266,000 „ „ Bombay „

were, in the beginning of January 1877, "receiving" relief wages for labour generally inadequate, on works of little value.

8. During January 1877 the manner of employing relief labourers changed greatly for the better in the Bombay districts, where the Local Government utilised to the full its staff of engineers, and possessed a number of excellent irrigation schemes and other projects. During the same month Sir Richard Temple was deputed to visit the famine districts, and to confer with the Local Governments as to the best means of enforcing economy in relief operations. It was found that vast numbers were in receipt of relief who, for a time, could support themselves. The relief wage rate was lowered, the number of petty relief works reduced, and the supervision of relief labour increased. In consequence of these measures, the numbers of people on the relief works were, at the end of April 1877,—

In Madras districts ... ... 716,000 persons,
In Maisur ... ... 62,000 „

In Bombay, the numbers had risen to 287,000; in Madras, 11 per cent. of these labourers were on useful works under professional supervision; in Bombay, 90 per cent.; and in Maisur, 47 per cent.; but the numbers on relief works were, in a way unexplained, reduced as the pressure of the famine increased, and large sums are now being spent on infructuous alms, instead of being devoted to improving by relief-labour the many irrigation works of the province.

9. I fear that much of the roadwork under revenue officers can be of no lasting value, while its cost is from twice to twenty times the ordinary rates; whereas the irrigation and railway works executed under professional supervision will be of permanent good in improving the country and averting future famines; some of these works are being executed at only from 20 to 50 per cent. above ordinary rates. On the 12th August 1877 the proportion of relief labourers employed under professional supervision on large works in Madras rose to 21 per cent. on the total number of workpeople.

10. Gratuitous relief began early in the present famine. By the end of December 1876 there were in the receipt of gratuitous relief,

110,000 persons in the Madras districts,
3,000 „ „ Bombay „
30,000 „ „ Maisur „

These numbers reduced in January and February 1877; increased enormously and rose in July to

839,000 in the Madras districts,
160,000 „ Bombay „
151,000 „ Maisur „

In Maisur the number of persons on gratuitous relief is more than three times higher than the number of the relief labourers; and it appears that relief works have not been properly managed. The persons on gratuitous relief in Madras and Bombay belong to three categories:—

	Children of labourers on the relief works.	Persons fed at relief houses and relief camps.	Persons relieved at their homes through village agencies.
Madras (according to the latest detailed return for the beginning of July)	149,000	207,000	218,000
Bombay	83,000	66,000	

[1] See page 106.

The Maisur returns do not distinguish the several classes of charitable relief. As long as relief wages are kept at subsistence rates, the small allowance of 3 pie (⅜ of a penny) per diem must be continued to the infant children of relief-labourers. The inmates of relief camps and the daily recipients of food at relief-houses are ordinarily fit subjects for charity, provided that able-bodied people are drafted to relief-works as soon as they are strong enough to labour. Relief through village agencies may become unavoidable where famine presses severely; but its administration must be very carefully supervised, in order that the needy may be really relieved. In Bombay, the number so relieved in each district varies according to the pressure of distress and the numbers on the relief works; but the figures for Madras lead to a belief that different systems are pursued in different districts—for instance, in Kurnul, where severe distress afflicted the whole district, only 5,519 persons were receiving village relief at the beginning of July; whereas in Salem, a part only of which district was severely distressed, 88,020 persons were on village relief.

11. As to the main object of relief-operations, *viz.*, the saving of human life, much, but not complete, success has been attained. In some tracts relief operations began too late; at Madras and Bangalor, and on some of the roads leading to such centres, starvation deaths have occurred; the death-rate from cholera, dysentery, and such like diseases has greatly increased over large areas; but the worst evils of famine have, so far, been successfully averted over the vast tracts visited by failure of crops. According to the standard of mortality during the Orissa famine from three to five millions of people (instead of only half a million) must have died of famine, in Southern India during the year 1877 if the guaranteed railways had not existed, and if Government had incurred no outlay on relief operations.

12. During the spring and early summer of 1877, it was hoped that the season might be favourable; that spring showers might bring forward some early food crop in June; that bountiful summer rains (south-west monsoon) would enable the people to secure a large food harvest during August and September; and that favourable October rains (north-east monsoon) would fill the irrigation tanks, and restore plenty to the districts of the Madras Presidency. The October rains are not yet due, but our spring and summer hopes have been disappointed. Had they been fulfilled, there would have been no present need for special aid from the Government of India; some millions sterling would have been spent,—there would have been some waste,—but in the main the great object of all this expenditure would have been obtained; the difficulty would have been over, and the Government of India would have placed on record for future guidance the lessons taught by the famine of 1877.

13. But so far as the season has gone, our hopes have not been fulfilled: the spring showers came not; the summer rains have, until the last week of July, been very scanty; the main food crops of part of the black soil country in the Dakan are in great jeopardy; it is feared that the unirrigated food crops of Madras and Maisur must be lost unless the good rain of the past week continues during August; the local officers report that already a large proportion of these crops are dried up; the irrigation tanks of the Maisur country are dry, and no fresh food crops can be reaped on any large scale in Southern India before December 1877. If there be favourable rains in August and September, and if the October rainfall (north-east monsoon) be full, plenty may be restored by January 1878.[1] Even under the most favourable circumstances, the pressure of famine in many districts of Madras and Maisur cannot abate greatly before January 1878; at the best, the tension in Bombay may lessen in September, and may cease altogether in December.[2]

There must be another year of famine:—

In parts of Bombay, of the Dakan, of Bellary and Kurnul, and over a great part of Maisur, unless the rainfall of August and September be unusually heavy; over a great part of the Madras Presidency, if the rains of October should be scanty.

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[1] The famine lasted till October 1878.

[2] The meteorological returns give—

	Average rainfall, in inches, during the months.		
	June to September.	October to December.	The whole year.
Puna	22⅓	6	31
Belgaum	36⅓	5	47⅓
Sikandarabad	20¾	8	30
Bellary	11⅓	3	17
Bangalor	19	7¾	34⅓
Mean of eight districts in Maisur	17	8	...
Madras city	15	29	48⅓
Salem	17	8¼	34¾
Coimbator	6	8⅓	21
Negapatam	9	24¼	35¼
Trichinopoly	12⅓	11⅓	29⅓
Madura	15	14¼	26

In the Dakan, and in the Ceded Districts of Madras, the summer rainfall (south-west monsoon) is the mainstay of the crops; in Maisur, the heavy rain which fills the tanks comes with the summer monsoon, but the October (north-east) monsoon gives a considerable rainfall, especially in the south of the province; and in the districts of the Madras littoral the October monsoon yields the main rainfall of the year.

Though the north-east monsoon may be merely the rebound of the rain-clouds travelling up the Bay of Bengal with the south-west winds, still we need not fear that scanty summer rains in Madras must necessarily be followed by equally scanty October-rain; for the cloud-currents which have this year shed plentiful summer rains over Burma and Bengal may return with the north-east winds to water the Madras littoral.

The famine in Bombay ceased in November 1877.

14. Thus the present situation in Southern India is that, at the end of the season of famine, one of the great food crops of the present season is everywhere in jeopardy, and in some parts irretrievably lost. Prices of food over the famine country are four or five times the ordinary rate; 2,500,000 people are being directly supported by State charity, of whom barely 450,000 are performing work that will have useful results. The present pressure of famine, and rate of expenditure (considerably above half a million sterling per month), cannot, at the best, be greatly lessened before December 1877; whereas, if the season turns out unfavourably in any part of the famine country, that tract must suffer from a second year of famine, more severe than the year through which it is now passing.

15. The position in Southern India becomes aggravated by the fact that the summer rains have been extremely scanty in the North-Western Provinces and the Panjab. Vast areas of these provinces are protected by irrigation; the surplus food in stock from the bounteous harvests of the last few years is said, in the Panjab, to be very great; and the autumn-crop has not yet been lost. There is no ground for fearing actual famine in Northern India, although there may be serious scarcity and suffering; but the surplus food available for export thence to the famine country will be greatly reduced. In Bengal, Burma, and Central India, there is no reason to anticipate that the winter crops will not be full; but the main crops of Bengal and Burma can hardly be estimated before October, at earliest.

16. The prospect in Southern India, more especially in Madras and Maisur, is as serious as it could possibly be. If a second famine has to be encountered over this large portion of the Empire, the duty of saving the lives of the people, and of utilising to the utmost the vast expenditure which must be incurred, will impose as arduous and gigantic a task as any Government could be called upon to undertake. Before entering on this task, it may be well to state what are the main principles which Government should follow.

17. The Government of India, with the approval of Her Majesty's Government and of the people of India and England, are resolved to avert death from starvation by all means practically open to the resources of the State.

18. When harvests fail in an Indian province, considerable old stocks of food are left in the hands of the landholding and mercantile classes, but often held back from sale. Markets have therefore to be supplied with grain imported from a distance. Except under most exceptional circumstances, the function of supplying the demand for imported grain can be best discharged by private trade. The Government should give all possible information, and, where necessary, facilities to private trade; publish early and correct information as to prices and means of carriage; should reinforce the carrying power of railways and canals leading into the famine tracts; should remove tolls and other restraints on intercommunication; should improve the roads into the interior; should reduce rates of railway or other carriage; and should lay down temporary railways or tramways from railway lines into populous tracts whereto means of communication failed. These will be the most useful of all works, if we have to meet another year of famine. Government operations in the grain-market disorganise and paralyse private trade to an extent out of all proportion to the operations themselves. Moreover, where the carrying power of a country by rail, canal, or cart is limited, and is fully utilised, Government grain-importations must displace a corresponding quantity of privately-imported grain. Under no circumstances likely to occur, ought the Government itself to engage in importing grain. Trade towards the famine country from Bengal and Northern and Central India is at present active; and there is reason to believe that the Indian sources of supply are still considerable. More food, whether from abroad or elsewhere, will reach Madras, if we leave private enterprise to itself, than if we paralyse it by Government competition. These remarks refer to the famine we are now dealing with. I do not intend to assert that famines cannot occur in which Government interference for the importation of food may not be absolutely necessary. Indeed, the Orissa famine was one of those cases.[1]

19. Before scarcity of food deepens into famine, there is a large and increasing section of the population who are out of work, and have no means of buying food at dear rates. My view is, that relief employment, at a subsistence rate, should be provided on large supervised works, of permanent benefit to the country. The advantage of large works of this kind over petty local works is twofold,—the obligation to do a full day's work, at a low rate of wage, and to go some distance to work, keeps from seeking relief people who can support themselves otherwise; and the money expended on such works bequeaths permanent benefits to the country.

20. On this point, the passages from Sir Richard Temple's report of his mission to the distressed tracts of Southern India are valuable. He writes

"It seems to me that we forcibly and positively learn* * * * * * *

I do not think it would be possible to define more clearly those principles which seem to me the right ones for the organisation of famine relief works."

21. At the beginning of a famine there are some, and before the end there will be many, people—from physical infirmity, from social custom, or from some other reason—unable to earn wages on relief works, who have no means of buying food. For persons of this class the State must, when the sources of private benevolence are dry, provide gratuitous relief, if it undertakes to provide for them at all; for it is the inevitable tendency of all gratuitous relief afforded by the State, if it be not supervised with scrupulous exactitude, to intrude injuriously[2] on the field of relief-labour, and to demoralise masses of the population. Such relief

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[1] See page 52.
[2] See Report dated 14th April 1877, by Sir Richard Temple, page 19 of this Report.

may be given in the shape of grants-in-aid of private charity; of cooked or uncooked food, distributed at relief centres, at camps, or poor-houses, where the recipients of relief are tended; or (if complete means of supervision exist) of money alms to paupers at their homes through village agencies. One or other of these forms of gratuitous relief must be dispensed in every famine tract. At large centres of population, relief-camps are useful; for the inmates are prevented from wandering and starving for want of alms. On great roads and lines of traffic, out-door relief centres are more suitable. Where a good indigenous village agency exists, it is advisable to register and relieve, at an early stage of a famine, the helpless paupers in their villages, so that they may be prevented from starving at home, or from wandering forth in quest of charity. But, in whatever shape gratuitous relief be given, the ordinary district organisation must be greatly strengthened to secure its honest administration. No other form of famine relief is more open to malversation. Every rupee spent in providing effective, trustworthy supervision is saved, not only in preventing wasteful expenditure, but in securing that the relief given reaches the persons for whom it is intended, without being turned aside into the pockets of people who can do without State aid.

22. * * * * * * * *

23. The amount of grain carried daily into Southern India will have to be greatly increased. The present estimate, founded on the figures of the Local Governments, is, that into the Madras, Maisur, and Hydarabad districts alone, from 4,500 to 5,000[1] tons of food may have to be carried daily; whereas 2,500 tons a day was the greatest quantity carried during the past season. I believe this full task can be accomplished. During the Bengal famine, the railways, working from three directions, carried at times as much as 4,000 tons of food a day; and the railways into Madras and Maisur work from four different ports, besides the fifth line from the Bombay direction. No time should be lost in framing, in publishing to the trade, and in bringing into effect on the guaranteed railways, a scheme whereby 4,500 to 5,000 tons of food can, if consigned by the trade, be carried daily into the famine districts of Madras and Maisur. When the railway has brought the required supply of food into the country, the question will arise, whether the famine-stricken cattle can suffice for the task of distributing by cart the large quantities required in the interior of the districts. And the problem will have to be decided whether it will be best to lay down rough tramways for carriage of grain; to bring the destitute poor to places near the railway lines, or to promote their emigration into other provinces.

24. Next, all the best engineering skill available in the many provinces of India should be lent to the Madras Government, so that a sufficient number of large public works may be opened in all parts of the Madras, as well as of the Maisur, famine country, at which the largest possible proportion of the 2½ millions of people now supported by the State may be employed under supervision on works helping to protect the country from future famines. The districts of Madras and Maisur are studded with irrigation tanks, and traversed by rivers, many of which are turned into irrigation channels. The projects and estimates for such works may not be in detail; but it would be better for the people and for the country that the Government should accept a moderate proportion of failures in such works than not to attempt them at all. It would be wiser to lay out one million sterling on irrigation channels and reservoirs, which will store water for future needs, or on other works of lasting utility, than to spend half a million on petty works, which cannot be supervised, and are of no permanent usefulness. Of the famine roads which in 1874 were undertaken in Bengal, a half had to be left unbridged and unfinished. These have since fallen into a condition of utter uselessness, owing to the inability of local funds to maintain them. It would be desirable to sanction for Madras a special Chief Engineer for famine works, as was done for Bengal in 1874. Nothing is more essential to successful administration in such a crisis than the concentration of authority in the hands of a single man of energy and judgment, who shall be responsible to the head of the Local Government. I am satisfied that the great success which has attended the operations for the relief of the present famine in Bombay has been mainly due to the fact that this principle has been strictly acted on. The Chief Engineer, Major-General Kennedy, has been virtually responsible to no one but the Governor himself; and I believe that both the late and present Governors of Bombay have thus been able to carry out their orders with a vigour, promptitude, and success otherwise impossible. This arrangement might have been as injurious as it has proved beneficial, had the officer been deficient in experience, judgment, or energy.

25. When the employment of relief labourers shall have been thus made over to professional agency, the Civil Officers will be able to give their time to organising and supervising gratuitous relief, and to saving the helpless poor from starvation.

26. The two main objects to which the best endeavours, and all the available power, of the Government of India and the Local Governments must now be directed, are—

firstly, the framing and working of a scheme whereby 4,500 to 5,000 tons of food may be carried daily into the famine country; and, secondly, the selection and commencement of large public works of lasting utility, on which all the able-bodied relief recipients of either sex and any age should at once be employed.

27. The beneficial effect of money expended on well-considered and well-organised public works will be felt in the future. But for the immediate relief of the present distress, the creation and supervision of new means of transport are urgently needed. Our reserve of grain is amply sufficient to meet the increasing demand, and, even if it runs short, we may reckon with confidence on the enterprise of trade to supply the deficiency. But the arrangements

[1] This quantity would give subsistence to about 10,000,000 people daily.

which must now be made for distributing over large tracts of country, where no sufficient means of transport yet exist, that quantity of grain which their population requires, and the trade is able to supply,—will be difficult.

28. I have not included the Bombay districts in the tracts where special joint effort by the Supreme and Local Governments is at once required; because prospects in Bombay are not so bad as in the south-eastern districts,[1] and because the management of relief works in Bombay has, during the past season, been such as to warrant a confidence that famine, if it comes, will be met, and relief labourers employed on well-organised works.

29. The situation in Maisur is, in proportion to its area and population, more critical than in Madras. The Maisur demand for imported grain has, throughout the famine, been larger with reference to the distressed population than in the Madras Presidency. The fate of the crops now in the ground is more doubtful in parts of Madras than anywhere else. The employment of the destitute poor on useful public works has, since April last, been inadequate. At the present time the persons on gratuitous relief are three times as many as the relief labourers on public works. In Bombay, the numbers on gratuitous relief are now little more than half the total of relief labourers. In Madras, the total number on gratuitous relief is somewhat less than the total on works. Reports have been received that people in the last stage of distress flock over from Maisur to British relief-houses for help. It would seem that Maisur relief arrangements are neither efficient nor sufficient.

30. As my colleagues are aware, it is my intention to visit Madras and Maisur immediately. Before starting, I have thought it desirable to place on record my reasons for undertaking it—these will be found in the foregoing general statement of the main facts of the present condition of the famine-stricken districts in Southern India.

31. It is unnecessary to discuss any of the particular measures which have been, or may have to be, adopted for meeting those difficulties. The teachings of experience would be as barren as they are bitter, were it impossible to derive from study, not only of the phenomena of the late famine in Bengal, but also of the course of the present famine in Madras and Bombay, a clear apprehension of certain general principles of famine management. The soundness of these principles is, I think, established both by the beneficial results of their timely and intelligent application, and also by the disastrous consequences which have attended the disregard of them. But it is obvious that the application of them must be easier in some localities than in others. My object, therefore, in now proceeding to Madras, is not to urge upon the administrative authorities the adoption of any system devised, *à priori*, without due reference to local peculiarities, but to endeavour, by frank, unprejudiced personal conference with His Grace the Governor, to ascertain how far it may be practically in my power to place unreservedly at his disposal, for the furtherance of measures approved by his judgment and experience, all those resources commanded only by the Government of India.

32. Two or three such measures are already foreshadowed by the Duke of Buckingham in an important and suggestive minute, which has just reached me. In this minute His Grace has overruled the opinion of those who wanted to give extraordinary diet and comforts, costing several rupees a month per head, to all inmates of relief camps; has wisely decided that none who can work shall be relieved, except on public works; and has indicated large public works, mainly of irrigation, which will supply labour for all applicants in six districts and parts of two others.

33. Should it be found possible to develop the salutary principles on which these decisions are based, by bringing the whole of that portion of the relieved population capable of work under an organised engineering supervision, one of the great dangers with which the Madras Presidency is now threatened will have been successfully averted. But even to carry out with complete efficiency the wise measures already announced by His Grace, the local Public Works Department will require addition to the strength of its staff, and relaxation of departmental rules. The Governor of Madras has preferred schemes for storing surplus water, to projects for carrying it away; and the Madras engineers are, perhaps, the best hydraulic engineers in all India. It will be my earnest endeavour te afford the Government of Madras every encouragement and assistance in my power for the prompt and bold developement of large local public works of every useful kind. In the circumstances we have to deal with, it is not necessary that such works should be remunerative in the ordinary sense. Since relief labour must be employed on an enormous scale, it should be on works of the greatest possible permanent utility, even though they be wanting in the remunerative conditions requisite to justify our sanction of them in ordinary times.

35. I can no longer question the urgency of my own duty, under the pressure of a natural calamity greater than any which has in modern times afflicted India. It is clear that the humane efforts of the Madras Government have proved insufficient to diminish the intensity, or reduce the area, of this calamity. The distress, which appears to be increasing with frightful rapidity, must, even under the most skilful, economical, and energetic management, strain to the utmost the administrative abilities of the local Government and the financial resources of the Empire: therefore, I cannot doubt that the Governor of Madras is entitled to receive from the Viceroy the unreserved assistance of all the technical skill and special experience this Empire can furnish.

36. Nothing could be further from my intention than to interfere with the local authorities who have so long and zealously been combating the growth of a gigantic catastrophe. Although, up to the present moment, the result has not equalled the assiduity of their untiring

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[1] See page 24.

efforts, yet the energy and devotion of the district officers throughout Madras, during the protracted and increasing strain upon their physical and mental faculties, cannot be too highly appreciated. It is not to inadequate energy or intelligence, but to inadequate numbers and inadequate executive powers, that I attribute the incompleteness of their success.

The Viceroy, in his telegram of the 16th August 1877, to the Secretary of State, said :—

I start to-morrow for Madras and Maisur. No change in position of affairs. I consider the present state of things frightful, and future prospects most alarming. There is everywhere the greatest zeal and devotion, but want of unity in administrative authority. My desire is to introduce into Madras a system similar to that which has worked with admirable success in Bombay,—to employ the people on great works of permanent value, and, while relieving all real distress, to apply proper tests. My plan is to induce the Duke to take into his own hands the entire management of the Famine Department, with General Kennedy as his chief executive officer. I will place at his disposal the best ability and experienee that India can furnish, to act in any way that he desires, in co-operation with his own officers, and will then leave him entirely unfettered by interference of Supreme Government. The strong local officers are admirable, and I desire that the Duke should give his orders to them without intervention of Council or Revenue Board. He would be his own Famine Dictator, as Lord Northbrook virtually was in 1874.

The Government of Madras, in its letter No. 2232, of the 31st of August 1877, to the Government of India, states :—

2. His Grace the Governor having had the advantage of a conference with His Excellency the Viceroy, has resolved to frame a rule under section 28 of the "Indian Councils Act," providing that all famine questions coming before the Government of Madras shall be laid before his Grace the Governor, and disposed of by him. Orders issued under this rule will have the force of orders of the Governor in Council.

3. It has been decided that to His Grace the Governor shall be attached a high officer, possessing the confidence of the Government of India, who shall be a Personal Assistant to the Governor in famine management.

4. The Chief Engineers in all departments, the Collectors of districts, and other controlling officers engaged in famine management, will be instructed to address all their references to Government on famine matters to the Additional Secretary in the Revenue Department, and not through the Board of Revenue. Such reports, and the orders passed by Government thereon, will be communicated in the ordinary course to the Board, in order that the Board may be kept fully informed of all that passes, and that its members may be competent to advise the Government whenever their aid may be asked. If the work thus thrown on the Secretariat should prove excessive, His Excellency the Viceroy will, the Governor understands, be willing to sanction an additional Under-Secretary, or other requisite staff, in the Government Famine Department.

5. His Grace the Governor proposes that members of the Board should be deputed, as heretofore, to visit the distressed districts, inspect relief operations, and report to Government the manner in which orders are being carried out.

6. His Grace the Governor was glad to find that His Excellency the Viceroy is in accord with himself as to the principles which ought to guide the famine policy of Government: these principles may be recapitulated.

[1] They are—* * * * *

7. To give effect to these principles, His Grace the Governor desires a considerable temporary addition—

(*a*) to the engineering staff of the Presidency;
(*b*) to the European staff for the supervision of gratuitous relief.

His Grace the Governor would ask the Viceroy to lend him—

(*a*) Ten 1st or 2nd grade Executive Engineers, ten 3rd or 4th grade Executive Engineers, twenty Assistant Engineers of not less than one year's standing, twenty Upper Subordinates of the higher class;
(*b*) One hundred active young European officers belonging to one or other o the following classes :—
Staff Corps, Artillery, or other military officers, not more than 35 years of age.
Assistant or Acting Assistant Superintendents of Police.
European Inspectors of Police, of the better class.
Assistants in the Forest Department of not less than 18 months' service.
Assistants from the Engineering Department of the railways.

The extra allowances to these officers will be governed by the rules in force regarding officers deputed for famine duty.

The Government of India, in its letter No. 775, of the 31st August 1877, to the Government of Madras, sttaes :—

3. The Viceroy and Governor General highly appreciates the motives which have induced the Governor of Madras to associate with his personal administration the services of an officer

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[1] See Letter No. 34, of the 5th September 1877, from the Governor General of India, to the Secretary of State for India, paragraph 10.

possessing the special confidence of the Government of India. I am, however, to point out that it is essential to the efficiency of this arrangement that all famine papers and questions submitted to the Government shall pass through the hands of the Personal Assistant, as was settled at the Conference above referred to. It is not suggested, nor is it at all desirable, that any obstacle should be placed in the way of the personal relations of the Secretariat with, and access to, the Governor of Madras; but it is absolutely necessary that the Personal Assistant to the Governor, accredited by the Government of India, should have full opportunity of stating his views to the Governor at the proper time.

4. The Viceroy and Governor-General is hereby pleased to attach temporarily to the Government of Madras, in the capacity of Personal Assistant to his Grace in famine matters, the Honorable Major-General Kennedy, R.E., who possesses the full confidence of the Government of India.

5. It is a source of much satisfaction to the Viceroy and Governor-General that the recent Conference between himself and Governor of Madras has established complete accordance in their views as regards the general principles of famine management, and the special measures best fitted for the application of those principles to the pressing difficulties which now call for prompt and decisive action.

6. With reference to the possibility that seed-grain may have to be bought by Government for distribution to ryots, the Viceroy understands that where such purchases may be necessary, they will be made in the local markets, and that seed-grain will not be imported by Government.

7. His Excellency the Viceroy appreciates the importance of not detaining the people from their customary home avocations whenever the revival of agriculture shall have enabled them to resume them without further dependence on State aid. But I am instructed to point out that until matters improve, and people can really support themselves by labour, it is most inexpedient that they should be sent back to their homes, to live there on gratuitous relief, when they might be earning wages on large works which would permanently benefit their country, or when, if capable of labour, they might be better kept in relief camps. Village relief in the shape of a money dole, or in any other form, should be granted only to those who are both incapable of work and without other adequate means of support.

9. Steps are being taken to procure the additional assistance required by the Government of Madras. The additional temporary appointments described in your fourth and eighth paragraphs can be made by His Grace the Governor in anticipation of formal sanction, for which application, with full particulars of salary and allowances, should be made.

The Governor-General of India, in his letter No. 33, of the 5th September, of 1877, to the Secretary of State for India, stated:—

3. Leaving Simla on the 16th August 1877, I met at Amballa the Commissioner of that division of the Panjab, who gave a very bad account of the prospects of the autumn crop. Over great tracts of the dry loose soil of the Cis-Sutlej country there had been no appreciable rainfall since early in July; a great part of the land prepared for autumn crops had not been sown, and much of that sown had withered. But there were still some weeks to the time for sowing the spring crops, which yield the great food harvests, and, should rain fall within that period, these crops would be sown over a larger area than usual. Water in the irrigation wells was not failing, though the hot dry winds scorched the crops and made irrigation less efficacious than in ordinary years. The appearance of the land round Umballa was, for the season of year, extremely dry and arid.

4. On the 18th August 1877 I met the Collectors of Agra and Allyghur, in the North-West Provinces. Prospects in the Agra district were then as bad as in any part of the North-West Provinces, and said to be less hopeful than in the Umballa division. In the Allyghur district there is more well irrigation and more canal irrigation, so that a considerable autumn food crop will be secured. In both districts there seemed to be already some fear about fodder for the cattle. In Allyghur, with its many canal channels, this difficulty will probably be not so great; but in the Agra district, if rain holds off, there must be great loss of cattle. The river Jumna there flows between high banks, unclad by verdure, and differs in this respect from the Ganges, which annually floods a broad belt of low ground beside its bed.

5. At the Agra junction station I was met by His Highness the Maharaja of Jeypur, with some of his chief officials. The Maharaja, laudably anxious about the prospects of his territory, placed in my hands a memorandum describing some of the measures he proposed to take for the prevention or relief of anticipated distress. The position in Jeypur was, in brief, that crops had failed to a large extent, that the grass was withering, and that dearth was beginning to be felt.

6. Simultaneously, a letter was received from Mr. Lyall, the Governor-General's Agent, stating that the whole of Rajputana, north-west of the Aravelli mountains, was threatened with serious scarcity; and that the crops were widely damaged, grass withering, and pasturage insufficient. There were large stocks of grain on hand, and the people were hopeful. Opportunity was taken when answering these papers to explain at some length to the Agent the famine policy which should be inculcated on the Maharaja of Jeypur, as well as on the governments of other Native States.

7. At Allahabad, the local officers reported that, though some of the autumn crops had suffered much from drought, yet prospects in the Allahabad and Banares divisions were not

nearly so gloomy as in the northern commissionerships. In all parts of the Panjab and the North-West Provinces, grain stocks in the hands of dealers, zamindars, and substantial ra'iyats, were unusually large, and that prices had not yet grown so dear as might have been expected.

8. On the 19th August I met, at Jabalpur, the Chief Commissioner of the Central Provinces, who drew my attention to the large and increasing stocks of grain and seeds awaiting despatch from Nagpur, Jabalpur, and other stations on the Great Indian Peninsula Railway, to the famine districts. Certain cases of corruption in the matter of allotting wagons had been brought home to station-masters on the two railways near Jabalpur. Both these points were discussed with the authorities at Puna.

9. In the Khandish and Nasik districts the country looked green, though the crops were backward. Much anxiety had been expressed about the condition of these two districts, and the local officials assured me that unless rain fell within ten days, most of the crops then looking well would wither. Happily, from three to five inches of rain has since fallen in Khandish; Nasik has also had good rain; and Sir Richard Temple's last report (30th August) says that "almost all anxiety regarding the Khandish Collectorate" is removed.

10. I reached Puna on the 19th August, and during five days' stay I had opportunity of conferring with the Governor of Bombay and with the chief Government and Railway officials of that Presidency. Here I also met the Collectors of Puna and Sholapur, as well as the Commissioner of the Southern Division. The prospects of the crops in the Bombay Presidency are now, save only in the Kaladgi District, much better than they were during the time of my stay at Puna. I visited a relief camp containing 3,000 inmates, a few miles out of Poona. This camp had been recently opened, and several hundreds of its inmates were in process of transfer to relief works. The camp was well ordered. Notwithstanding the high prices ruling in Dakan and Canarese districts, famine and distress are being met in the Bombay Presidency as successfully and economically as the means and circumstances permit. Save in the Kaladgi District, the crops to be reaped during the next five weeks will give a sensible relief to the people, and must reduce prices. In the districts of Kaladgi, Dharwar, Belgaum, and Sholapur, the price of the commonest food-grain rules dearer than in any district of the Madras Presidency. There was an increase in numbers during the week, and there were at the end of August 278,731 on relief work and 125,960 on gratuitous relief.

11. One important subject discussed at Poona, both with the Governor and at a conference of his railway officials, was the carrying power of the Great Indian Peninsula Railway, by which food-grain is sent, not only into the Bombay Dakan, but also into the Nizam's Dominions and into the Ceded Districts of the Madras Presidency. The sources of grain-supply drawn from by the Great Indian Peninsula Railway are the city of Bombay, the Nagpur and Berar Country, the Narbudda valley districts, and the East Indian Railway, which despatches grain-wagons through the Jabalpur junction. This grain is consigned to Khandish and Nasik in districts above the ghâts; to Bombay city; to the Bombay-Dakan stations for the supply of Puna, Sholapur, Kaladgi, Sattara, and the Southern Mahratta feudatories; to the Hydarabad country; and to the Madras Railway for the Ceded Districts. The grain which the Great Indian Peninsula Railway ought to deliver is:—

	Tons daily.
To the Khandish section	300
„ Bombay-Dakan stations	800 to 1,000
„ Hydarabad branch line	300
„ Madras Railway at Raichor	900

The Great Indian Peninsula Railway authorities have, after much pressure, delivered these quantities, on the average, at each section, except at the Raichor end, where they have recently delivered an average of barely 600 tons a day. Now the Madras Government require 900 tons a day delivered at Raichor, otherwise they cannot throw into the interior the grain actually needed. The Bombay Government and the railway officers agreed that, by starving all other railway traffic and by stopping the export trade,* it would be possible, with the present rolling-stock, to maintain on an average the grain deliveries demanded. Suggestions were made for additional crossing-stations, for longer sidings, and for other traffic facilities; but it was clear that the carrying power of the Great Indian Peninsula Railway was limited by its engine power, and that, to meet the present emergency, additional engines were needed. Sir Richard Temple at the Conference represented strongly that without additional engines the railway would be unable to serve the export trade, which would certainly demand accommodation in the cold season; and that, if produce could not be carried to the port of Bombay, shipping would go away empty, heavy mercantile losses must occur, the trade of Bombay would be injured, and the rate of exchange might suffer. If the engine power could be largely increased by January 1878, the railway could serve both the famine and the export trade. No sufficient relief could be given by borrowing engines from other lines. The Dhond and Munmar Railway, shortening the railway route from Northern to Southern India, relieving famine traffic to the extent of thirty-six engines, could hardly open soon enough to meet the urgency of the case. Accordingly, I telegraphed to your Lordship for the despatch to Bombay of 100 engines to work on the Bombay Peninsula line. The letter No. 117, Railway, dated 25th August, sent by my honourable colleagues, explains at length the reasons on which we recommend that these engines shall be purchased

* By the latest Custom House return, about 400 tons of seed and grain were leaving Bombay daily by sea.

on account of the State and treated as the State reserve; and that they be hired only to the Great Indian Peninsula Railway. The telegrams from Simla and from Puna ask that these engines may be sent out as they are ready, and that extra payment be made for early deliveries. The alleged corruption among station-masters was discussed at our Conference: it appeared that the evil had not been so general as I had been led to suppose. The establishment of a syndicate of traders at every large station, to regulate the allotment of wagons, is said to be acting as a safeguard against corruption. Such syndicates were recently formed in the Central and North-West Provinces, and their usefulness will doubtless increase.

12. Since leaving Puna, I have learned by telegraph that the deliveries of grain to the Madras Railway at Raichor are still below the stipulated 900 tons. The Bombay Government explain that the higher prices ruling in the Bombay Dakan induce dealers to consign grain thither, rather than to Madras. Market quotations show that prices in the Dakan and Hydarabad country are dearer than in the Bellary district; and while this continues, there is soundness in Sir Richard Temple's deduction that Bellary food-stocks must be larger than the Dakan stocks. The recent favourable rain in Khandish and Guzerat has been followed by a fall in wheat quotations in Bombay; and the improvement in crop prospects by showers in the Dakan may partially bring down prices. All we can do is to give preference, at Nagpur and Jabalpur stations, to grain for the Madras Railway. But until relief comes, either from fresh harvests or by arrival of additional engine-power, the working of the Great Indian Peninsula Railway, and its due delivery of the required quantities of grain in the famine country, cause anxiety. The Government of India and your Lordship may rely on Sir Richard Temple's efforts to secure a good result. The officers of the Great Indian Peninsula Company are exerting themselves in co-operation with the Governor.

13. On the 25th August 1877, I was met by the Resident at Hyderabad, who confirmed what he had reported by telegram and letter regarding the distressed condition of four districts in the south of the Nizam's Dominions. The autumn food crop has absolutely failed in the districts of Raichor, Lingsagur, Gulburga, and Shorapur, with a population of 800,000; the price of the commonest grain is 7 lbs. per rupee; 70,000 people are now supported by the Nizam on relief works, or gratuitously;—the pressure must last till February 1878; while if the October rains fail it may endure until August 1878; the Nizam's expenditure on famine relief, and his loss of revenue, already amount to nearly fifty lakhs of rupees; if the worst comes, the total cost of the famine may reach three millions sterling; the Nizam's treasury is empty, and the Minister will probably apply to the British Government for a loan wherewith to defray his famine expenditure. The distress in the Nizam's Dominions aggravates the difficulties of Kurnul, Bellary, and Sholapur.

14. Happily, good rain has fallen in Berar, and Sir Richard Meade assured me, at our meeting on the 29th August, that fears of scarcity in Berar were removed.

15. I reached Bellary on the 25th August, and the next day visited the relief camp in that district, which contained about 4,000 inmates. Among them was a considerable proportion of children and old people, who had been reduced by want and disease. Among the children were some in a pitiable condition—they had manifestly suffered from hunger; and it was said that in some cases parents had abstracted the meal supplied to the children. Nearly half of the inmates were in good condition, and ought to have been at work. The weekly death-rate was very high,—over 500 per mille per annum; but into these camps are collected the sickly, the very old, the very young, and, in fact, the people who in ordinary years furnished the mortality of the whole community. In immediate executive charge of the camp was a Bengali Assistant Surgeon, who seemed to be doing his work admirably.

16. I was impressed by the fact that the Bellary District had in the ground a certain early crop, which, if fertilized by rain, would yield a substantial addition to the food-supply. The reports show that the breadth of this early crop in the southern and western taluks of Bellary is large, and its condition more flourishing than in the parts we visited. Telegrams received since we left Bellary report that good rain has fallen. Fortunately, the prospect of Bellary for next year does not depend on the crop now in the ground; the great food (millet) crop of Bellary, and also its cotton crop, are sown in September and October; the millet ripens in January, and the cotton is plucked in March. If the rainfall of September and October is good, Bellary (and the rest of the Ceded Districts) will be prosperous by the end of February 1878.

17. I reached Madras on the 29th August 1878. That evening I visited the relief gangs on the junction canal near Government House. The labourers were in very good physical condition. On this, as on other relief works in the Madras Presidency, task-work is practically not exacted; the hutting and conservancy system was good, but the labourers were supplied with food in excess of their customary diet in ordinary years. In company with the Governor, I inspected the Palaveram relief camp, with its 8,000 inmates, the Monegar Choultry relief camp, with 3,400, and the Red Hills camp, with 6,000 inmates. At each of these relief camps the arrangements were good, the camps clean, the people orderly, the hospitals well kept; but, at the very least, half the inmates were strong enough to have been employed on relief works, instead of living in enforced idleness on a high diet. In this respect the Madras relief camps appear to me to fall short of what economically managed relief camps should be. The weekly mortality in the camps is high, as at Bellary; and this mortality is principally among new-comers, persons found dead or dying outside the camps being reckoned in the death-rate of the camp. These deaths betoken insufficient relief in the tracts from which the people come wandering into Madras. From the South Arkot district, wanderers have recently begun to flock into Madras in considerable numbers, and to that district the Madras Government is now despatching Mr. Puckle, a member of the Revenue Board, to inquire into the matter.

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22. Much discussion has taken place during the past week on the working and the requirements of the Madras Railway. Seventeen additional engines and one hundred wagons have during August been borrowed from other lines and sent to Madras; one hundred more wagons will shortly arrive from the Baroda line. The Madras Railway is receiving from England six to eight new powerful engines per month; 200 metre-gauge wagons are on their way (some have actually arrived) from State lines for work on the South Indian Railway. The double line from Madras to Arconum has been opened for traffic. The despatches of grain from the Madras Terminus are reaching 1,800 tons a day, while the despatches inland from Negapatam and Beypur are keeping up to the mark. The several Madras railways will despatch inland the full quantity required daily—

	Tons daily.
From Madras Terminus, by the Madras Railway	1,800
„ Beypur	400
„ Raichur	900
By the South Indian Railway	800
„ canal and road from Madras	600
Total tons daily	4,500

The Government of India have refrained from compelling other guaranteed lines, by forced Government requisition, to lend more rolling-stock than they can willingly spare to the Madras Railway; and we are the more anxious not to make requisitions, because the other railways have loyally obeyed our request for loans of rolling-stock as far as they possibly could, and because we do not know what urgent need may spring up for grain transport in other parts of the empire threatened with scarcity.

23. Though the Madras Railways, by working full power, can thus almost meet the necessities of the case, yet it is not certain that they can continue to do so, or that they will be prepared for new demands which may arise if the north-east monsoon fails. Some of their engine and wagon stock is very old, and may become unserviceable before the crisis is over; the northern railways may, if difficulty comes in Upper India, have to reclaim the engines they have lent. We have telegraphed to your Lordship, supporting the Madras Government in their indent of the 17th August for 20 more engines, 600 wagons, and 40 brake-vans; and have asked for 20 more engines in addition to the Madras indent. You have informed us by telegraph that 500 of these wagons will reach India within ten weeks' time.

It cannot be said that the trade sends all the country can take; for the dear prices ruling in so many districts would show that more grain would be readily bought, if sent. But this is certain,—private trade is still consigning to the famine country much more grain than the railways can carry into the interior. In previous letters we have reported that more than 100,000 tons of grain are awaiting despatch at or near the railway stations in the Central Provinces. The Bengal exportable surplus, if the crop now in the ground turns out well, will not fall short of 350,000 tons. Already 100,000 tons of freight, chiefly steamer freight, has been taken up for despatch of grain from Calcutta to Madras ports during the present month. The actual despatches of rice from Bengal to Madras were 53,225 tons, or an average of 3,800 tons daily, during the fortnight ending the 29th August. The despatches from Burma to Madras were only 400 tons during the same period; so that there would seem to be truth in the opinion expressed by merchants, that the Burma rice-ports have no more grain to send till next crop comes to market, in December. From Saigon 150,000 tons were ready for export, but most of this would go to China, where there is a large famine demand. A telegram from the Governor of the Straits Settlements, dated the 1st September, has told us that the Siamese Government has prohibited the export of rice from Bankok until the 30th September, on account of the threatened dearth in those territories. At the same time, the Persian Government has prohibited grain exportation from Bushahr. For the present, India cannot expect food-supplies from further Asia, but must send the surplus of the north to the south. Any grain imported by Government would occupy railway wagons, to the exclusion of private despatches, and paralyze trade.

25. On my way to Madras, I received a report from the Lieutenant-Governor, on the prospect of the autumn crops in the North-West Provinces and Oudh. His account was, that the early (July and August) rains had failed over large tracts of the North-West Provinces; that over the Agra, Meerut, and Jhansi Divisions, and over a great part of Rohilcund and Oudh, the unirrigated autumn crops either had not been sown, or had withered, and that the irrigated crops had been scorched by the hot dry westerly winds. The redeeming features of the situation were, that the autumn crop in the Allahabad and Benares Divisions, though in jeopardy, would be saved if rain came; that the food stocks in the country were very large, and that there was ample time for the rain to come and secure good spring crops, which yield the larger food harvests of the year. Sir George Couper had given directions to Commissioners to open relief works of certain classes as soon as they deemed necessary. While commending the North-West Provinces Government for its foresight and the caution given against alarmist views, I have desired a reconsideration of the orders permitting the commencement of petty relief works in many parts of the country; and directed that if relief employment is to be a charge against the general treasury, such employment should be given on fully-supervised large works of permanent usefulness.

26. From the Resident at Baroda I learnt that a serious failure of the autumn food crop was impending, and that prices were rising to famine rates (twelve pounds per rupee). An

interesting and suggestive letter was received from Sir Madhava Rao, the Baroda Minister, on the same subject. The Minister's recommendations were, in effect, that relief works should be opened simultaneously, and a uniform famine policy adopted all over the Baroda country, over British Guzerat, and over the Kattywar Chiefships. It was urged that trade in grain should be everywhere exempted from transit-dues, and that nowhere should grain exports be prohibited. The Minister went further, and recommended that Government should purchase and import grain from other parts of the world. The Resident was furnished with a copy of the orders sent by Sir Richard Temple to the officers of British Guzerat, directing that projects for well-considered public works should be at once prepared, but forbidding the opening of relief works as long as the people could support themselves. The Resident was reminded that the ra'iyats of Guzerat were exceptionally prosperous, and that last season they had excellent harvests and high prices. He was cautioned against opening petty relief works or beginning gratuitous relief for the present. The attention of political officers attached to the neighbouring States was called to the desirability of all the Chiefs adopting the British principle of admitting free passage of grain from and to tracts threatened with scarcity. At the same time, the Minister was thanked for his suggestions; he was told of the steps taken by the Government of India to make known the state of prices in Southern India throughout adjoining provinces and countries, and it was explained that the Government would not engage in the business of importing grain.

27. I start to-night for Bangalor, to confer with the Chief Commissioner on the state of affairs in Maisur, the actual condition of which, as well as the future prospects of that State, are subjects of very grave anxiety. The last report received from Maisur shows the number on relief works slightly diminished and the number on gratuitous relief considerably increased. The following are the totals :—on relief works, 49,000 persons; on gratutitous relief, 213,000. These figures indicate clearly that the famine organisation in Maisur is unable to cope with the distress; and the radical error of the system may be gathered from the fact that, out of a total of 264,000 persons receiving relief, less than 23,000 are on works professionally supervised.

28. I have deputed two selected officers from the North-West Provinces,—Mr. C. A. Elliott, Commissioner of Meerut, and Major Scott-Moncrieff, R.E.,—to assist the Chief Commissioner, and five military officers to assist in controlling relief operations. A detailed scheme for providing public works and for reorganising gratuitous relief will be framed after discussion with the local administrative officers at Bangalor.

29. The Chief Commissioner of Maisur has applied to the Government of India for a loan of fifty lakhs to meet the famine expenditure. The expenses of the famine have hitherto been defrayed by the proceeds of the invested funds, amounting to Rs. 46,13,000. This supply will be exhausted by the end of the month, and the budget shows no balance. The Government of India have agreed to grant the loan, as otherwise the Maisur State would be compelled to borrow in the open market,—a policy which the Government is not prepared to accept in the case of any Native State; and the loan will be granted, on terms to be fixed hereafter, in the following instalments :—

In October 1877	Rs. 20,00,000
„ November „	„ 15,00,000
„ December „	„ 10,00,000
„ January or February 1878	„ 5,00,000

30. Until the beginning of September 1877, the condition of affairs in some of the Central India States, especially Gwalior and the Bundelkund country, was getting worse and worse. Already there was a demand for relief labour in Gwalior, emigration was beginning, and strings of emigrants were passing down the Indore road, some hundreds of whom received a meal at Goona. To relieve this pressure relief, employment has been opened on the further section of the Agra and Gwalior Railway.

The Government of Madras, in No. 2847, of the 24th September 1877, says:—

His Grace the Governor in Council is pleased to issue the following instructions[1] for the guidance of officers in the administration of famine relief:—

1.—The Madras Government has sanctioned to the famine-stricken, relief—

In the form of wages for work done—
Gratuitously, in camps, relief-houses, and villages, to those unable to labour.

2.—It has been determined that relief by employment on works for the strong, and relief gratuitous to the infirm, shall be continued.

3.—To enable employment on large public works to be more systematically carried on, the Government of India have agreed to lend a large additional force to the Public Works Department, and, to enable collectors to watch the distribution of gratuitous relief, have placed at the disposal of this Government a number of European officers.

4.—In order that the wishes and instructions of His Grace the Governor in Council may be understood, the conditions under which relief is to be continued are subjoined.

5.—Collectors and civil officers are responsible for sending to relief works, or for providing gratuitous relief to, all who have not means of supporting life. The Public Works Department officers are responsible for providing work in distressed districts, for the employment of the persons who may be sent to them by the Civil Officers.

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[1] These were approved by telegram of the 22nd September 1877, from the Governor-General, to the Secretary of State. See also his letter No. 37, of the 27th September 1877.

Relief Works.

6.—All relief shall be given through relief works, closed camps, and village relief.

7.—Relief-works affording, to the indigent capable of labour, the opportunity of earning money to buy food, constitute the backbone of the relief system.

8.—These works are of two classes—

(a) Those under the supervision of the Public Works Department, "called" professional agency works;

(b) Those not requiring professional supervision, called "civil agency works." These works will be under the superintendence of the Public Works Department or of the Civil Department, according to circumstances.

9.—Every district engineer will prepare a list of works in his district available as relief works. These lists should show—

(a) the probable cost of each work;

(b) roughly, the proportion of the total cost required for earthwork;

(c) the number of persons who can be employed upon each, and for how long.

10.—These lists will be submitted to Government through the Chief Engineer or the Chief Engineer for Irrigation. His Grace the Governor in Council will sanction them provisionally, either wholly or in part, and they be taken up from time to time, except large works, the commencement of which will be decided by his Grace the Governor in Council. The opinion of the collector should decide which of the works sanctioned shall be first begun. Estimates for works approved by Government in these lists should be submitted for final sanction; but the commencement of no work shall be delayed, where its commencement is necessary, for the reason that a plan and estimate have not been sanctioned. Lists of works already commenced, specifying the number that can be employed thereon, will be furnished by the district engineer to the collector, who will send copies to every revenue, police, and famine officer.

11.—The widest publicity of the locality of relief works must be given: the responsibility as to this rests with the collectors.

12.—The distinction between budgeted works and famine relief works is abolished in the following districts:—

Nellor.	Chingleput.	Madura.
Cuddapah.	North Arcot.	Tinnevelly.
Bellary.	South Arcot.	Coimbator.
Kurnul.	Trichinopoly.	Salem.

All works therein (Imperial, provincial, or local, excepting only buildings) shall be considered famine relief works, and shall be carried out under all the rules applicable to famine relief works. Any relief works necessary in any of the remaining districts will be carried out as special works, under special arrangements.

13.—All establishments at present employed under civil officers in supervision of relief works should be transferred, with the charge of the several works, to the Department Public Works as soon as the district engineer is able to take them over.

14.—All persons capable of labour, in fair health and condition, must be drafted to professional agency works; and with them also such members of their families as are willing to accompany them.

15.—Weak people, capable of *some* work, should be employed upon civil agency works; but should, as they gain strength, be drafted to professional agency works.

16.—Work is to be exacted, and musters taken, for six days in every week; payment for the seventh day is included in the following scales of wages:—

Rate of pay per diem.	Upon Agency Works.	
	Professional.	Civil.
	Anna.	Anna.
A man: the value of 1 lb. of grain, plus	1½	1
A woman: " "	1	¾
A child of 7 years and upwards: ½ lb. of grain, plus	¾	½

18.—By "grain" is meant grain of medium quality and of the description in ordinary use at the time of payment among the labourers on the works. The price is the retail price of the grain ruling during the previous week at the kasba (village) of the taluk (district).

19.—When work is interrupted by rain, so that the tasks cannot be exacted, professional agency labourers should be paid civil agency rates, and civil agency labourers the civil agency rate, less 2 pies.

20.—No work is to be exacted from children under seven years of age, nor are they to remain among the labourers working. Such children, belonging to parents or guardians employed upon works, must be mustered at a convenient spot at little distance from the work in

progress, and placed under the charge of women drafted to the works, employed as nurses. At large works and working camps, kitchens must be provided, and the children supplied with rations of cooked food not exceeding ½ a lb. of grain per diem. The nurses must receive their full ration of cooked food, 1 lb. grain, plus the money portion of the wage. On small works, officers must make arrangements for effecting this.

21.—To prevent relief works becoming attractive, three tests are necessary:—

1st,—Primâ facie evidence that the individual really requires employment upon a relief work;

2nd,—Distance of the work from the home of the labourer; and

3rd,—Tasks.

22.—The task to be exacted upon professional agency works is 75 per cent. of what the individual would be able to perform if he worked to the full extent of his ability; upon civil agency works, 50 per cent.

23.—In exacting these tasks, it will be necessary for the officers concerned to use great judgment, discretion, and firmness, so as to avoid oppression of the people or encouragement to idleness.

24.—It may be expedient to take, as the unit for tasking, a gang composed of all the members of one family on the work, or a portion of the inhabitants of a village. Consistently with economy and discipline, members of the same family should not be separated.

25.—The employment of contractors, directly or indirectly, is prohibited on relief works.

26.—Masonry work requiring skilled labour—such as culverts, tunnels, sluices, calingulas of tanks, and similar works—found essential to the completion of relief works, may be performed by contract. In selecting works to be placed on the list, Public Works Officers will bear in mind that the beneficial effect of the work as a relief measure is the principal object; therefore, works of which a large proportion of the estimate is for masonry, or compensation for land, should be laid aside as unsuitable.

27.—The distance test is necessarily enforced by concentrating relief labour upon a small number of large works, and, until further instructions, this test may be deemed to be complied with when the labourer goes to professional agency works and performs the exacted tasks.

28.—The question whether persons are fitting objects for relief works must be decided by the civil officers, who will refuse all persons save the destitute.

29.—The civil officers will despatch such applicants as they consider eligible with written duplicate nominal rolls; and the production of such rolls will be the authority to the Public Works Department Officers to employ the persons named. The rolls shall specify the name and father's name, and village, of each person; shall be dated, and shall bear the signature of the despatching officer.

30.—Where camps are necessary, they will be under the charge of the Public Works Officer directing the work, who will enforce rules of conservancy and select persons from the relief coolies for the duties of scavenging, water-drawing, &c.

31.—In transferring people to works at a distance exceeding ten miles, it will be necessary to pay batta. The amount of this batta will vary: it should never exceed 16 oz. of uncooked grain for each day's march.

32.—There will be exceptional cases arising on works, requiring exceptional treatment. What may be sufficient for the majority may be unsuitable in individual cases. Such cases, including those of people arriving worn-out, must be specially treated under medical advice, and fed in accordance with the scale in G. O. No. 2372, of July 24th 1877, for people under treatment. The extra allowance must cease as soon as the person, in the medical officer's opinion, regains strength.

33.—Persons not permanently incapacitated for labour will regain health, as soon as convalescent, more rapidly upon a relief work than amidst the surroundings of a relief camp.

34.—All labourers must be warned that they are liable to fine and dismissal from relief; but these punishments should be enforced with care and judgment.

35.—Short work, from idleness, should be met with a small fine, and a repetition of the offence with greater severity. But the effect of the fine in the case of weakly people must never be to reduce the wages of an individual on professional agency works below civil agency work rate, nor to reduce those of a person on civil agency works below the relief-house scale.

36.—Incorrigible idleness or insubordination on the part of persons in fair physical condition should be met by dismissal.

37.—Payments upon relief works must be made twice a week; oftener if necessary. New arrivals should for a few days be paid daily.

Charitable Relief.

38.—All previous orders relating to gratuitous relief, inconsistent with the following rules, are hereby cancelled.

39.—Relief officers will be appointed to the charge of one or more taluks, according to circumstances.

40.—They will supervise relief operations within their charges, except public works; will see that the orders of Government are strictly carried out; that relief reaches all in need; that waste, abuse, and fraud are prevented; and that economy, consistent with relief, is enforced.

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41.—They will be constantly on the move, and will visit the villages and relief camps often and at uncertain times.

42.—They will furnish to the collector every Saturday the following information :—

The cases in which relief has been granted, refused, or stopped.

Failure of duty, inattention, or inefficiency on the part of any officer or servant.

The physical condition of the people on relief,—whether failing, improving, or standing.

General remarks.

43.—Village relief shall be given either as cooked food or as money, according to the discretion of the collectors, and shall (subject to paragraph 53) be confined to destitute resident villagers, house-ridden or unfitted for labour. This class will include idiots, cripples, blind, the old or decrepit, or young children wholly dependent on such persons; women in an advanced state of pregnancy, or recently confined. These persons, to qualify for this relief, must be without well-to-do friends on whom their support would rightly devolve.

44.—On the receipt of these orders, officers in charge of taluks shall cause each village to be inspected by an officer not below the rank of a village inspector; and shall, after careful inquiry into each individual case, strike off the register any who do not come within the above description. The relief-officer in charge of a taluk or part of a taluk shall visit each village as early as practicable, and satisfy himself that his instructions have been carried out. No fresh admissions to the register shall subsequently be made, except under the orders of the village inspector, who (whenever he may authorise any such admissions) shall, in his next weekly return, report them to the taluk relief-officer, who shall transmit weekly an abstract showing increase or decrease of numbers in each village to the collector, for preparation of the weekly tabular statement for Government. The taluk officer shall as early as possible inspect the persons who have been newly admitted.

45.—Persons thus struck off the registers of village relief shall, if capable of labour, be sent to work, and, if temporarily incapacitated, be sent to the nearest relief camp, to be maintained and treated until able to work, or found permanently incapable.

46.—All open camps other than work-camps shall be abolished, and in their place such number of closed camps as may be necessary shall be established. On this point collectors should take steps.

47.—It should be clearly understood by the officers in charge, that no one capable of labour should be received into a camp; and that as soon as any one of such camp recovers strength sufficient to enable him to undertake labour on professional agency works, he should at once be drafted to such works, not situated within ten miles of the village in which he dwells.

48.—Officers of camps will recollect that the primary object of the camp is that the residents should be restored in strength, and rendered fit for work. Food and shelter, but no money payment, will be given. Camp diet is prescribed in G. O., 24th July 1877, No. 2372; but all camps must be so divided as to render it impossible for those not requiring it to obtain the special diet allowance for those under medical treatment. No one shall be admitted to the higher scale of diet, except under the order of the medical officer of the camp.

49.—Collectors will watch carefully the effect of relief operations, and if it should appear that any camp has a tendency to draw to it those who should be relieved in their villages, or any undue tendency is observed on the part of those on works to seek camp-relief, the diet must be so adjusted as to counteract such tendency.

50.—No outside relief shall be given at any closed camp.

51.—All able to work will be sent to a suitable relief work with a list as described in paragraph 29. The officer will exercise a careful discretion in cases where husband or wife, mother or child, may be ill in camp; and should not enforce separation. Any able-bodied person so retained temporarily in camp will be required to do suitable work about the camp.

52.—The collector should keep superintendents of camps informed of all works in progress, and to what extent labour can be accommodated on each work. The order of the superintendent of the camp to the officer in charge of the work shall be sufficient authority to the latter to receive the persons sent from the camp.

53.—Wanderers at any village, in a destitute state, shall be provided by the village-head with one meal, 10 oz. grain; he will be held responsible that no one manifestly in need to prevent starvation shall remain unrelieved; but such persons shall only receive one meal, and shall be passed on to the nearest relief camp, where they shall receive support or medical treatment, or be sent to work. In special cases, village-heads may incur such charge as may be needed to convey to the nearest relief camp destitute persons who cannot travel. When this is done, a report must be made to the village inspector.

54.—In laying out relief camps, sanitary requirements, position of hospital, water-supply, and latrines should be carefully considered.

55.—With the exception of those in hospital, persons in relief camps are not to be idle: they must be employed in all the necessary duties of the camp, its conservancy, water-supply, cookery, hospital attendance, &c.; in spinning, weaving, rope-making, or other similar light work. No allowances are to be given for work performed about the camp.

The Government of Madras, in its letter No. 1968, of the 12th June 1877, to the Government of India, said:—

For weeks there has been a continuous rise in prices in the districts of this Presidency.

DISTRICTS.	SIRS PER RUPEE.							
	RICE.		CHOLUM.		RAGI.		CUMBOO.	
	Week ending 5th June 1877.	In May 1876.	Week ending 5th June 1877.	In May 1876.	Week ending 5th June 1877.	In May 1876.	Week ending 5th June 1877.	In May 1876.
Ganjam	13·	26·2	19·	23·9	21·	36·3	26·	...
Vizagapatam	11·	16·7	17·	28·4	19·	30·2	21·	...
Godavery	10·	26·9	16·	38·1	17·	38·0	20·	...
Kistna	8·45	19·8	11-15	30·3	12·94	35·2	10·38	...
Nellor	7·78	15·1	9·64	27·8	11·74	29·8	10·06	...
Madras	8·76	11·7	11·90	18·0	10·64	19·3	...	...
Chingleput	8 90	15·9	9·05	...	10·72	22·6	...	...
South Arcot	8·75	15·4	11·	24·4	11·5	23·9	11·75	...
Trichinopoly	7·6	14·4	13·2	34·1	10·3	26·3	9·7	...
Tanjor	8·	14·7	10·	27·3	12·18	25·8	10·81	...
Madura	8·2	14·7	10·4	35·1	9·8	30·8	9·7	...
Tinnevelly	8·25	12·3	11·25	24·4	10·75	25·5	11·	...
Kurnool	6·95	15·3	8·06	28·3	9·51	28·1	8·92	...
Cuddapah	7·73	14·1	8·66	26·2	9·25	27·6	8·92	...
Bellary	6·83	14·8	7·56	25·3	8·25	25·4	7·29	...
North Arcot	7·9	14·5	8·9	23·0	9·8	23·1	8·2	...
Salem	7·43	13·2	9·	21·7	8·81	23·5	8·12	...
Coimbator	7·40	12·7	8·41	20·3	8·89	23·6	8·61	...
Nilgiris	7·4	10·4	8·45	14·2	9·	16·6	9·	...
South Canara	9·73	12·5	...	...	11·84	17·7	...	...
Malabar	9·09	12·5	...	...	12·25	19·5	...	...

At the end of May 1877, in Tanjor, no cholum or cumboo was obtainable in four markets out of nine, and no cholum or cumboo in two others, while rice was 7·5 sirs to the rupee in three markets. In Trichinopoly, out of five markets, no grain, except rice, was obtainable at Kulitalai, and rice was 6·5 sirs in Udyapolium. In Coimbator, rice was 4·9 sirs the rupee in Collegal taluk, and ragi 6·9. In Salem, prices at Tripator were, —rice 6·42 sirs the rupee, ragi 8·12, and cumboo 7·44; and in Salem itself rice was 7·68. In Bellary, though prices are stationary in Kudlighi and Hurpenhully, rice is 5·25 sirs the rupee, and 5·5 in Hudgully, while cholum is 6 to 6½ sirs the rupee. In South Arcot, of eight markets, cholum was not quoted in four, nor cumboo in two. In Chingleput, of six markets, cholum and cumboo were each not quoted in five markets. In South Canara, cholum and cumboo (not quoted) are not consumed. In Tinnevelly, cholum and cumboo were not quoted in four and three markets out of five. In Malabar, cholum and cumboo are not quoted; in Madura cholum is not quoted at all in one out of six markets. In Kistna, out of four markets, cumboo is not quoted in two. On the Nilgiris, of four markets, cholum is not quoted in one, cumboo in two. In the Godavery, of six markets, cumboo is not quoted in four. While in Kurnool the price at Ramalcotta was quoted for rice at 6·0, while cholum was 7·1, and no other grain was quoted.

Throughout the greater portion of this Presidency, prices are at a point causing severe pressure and increasing distress.

There are doubtless yet considerable stocks in the Presidency, although it is found impossible to obtain certain and reliable information, and these a favourable south-west monsoon may cause to be brought forward; but that these stocks must have been seriously diminished is apparent from the fact that, while the consumption of the population at 1 lb. per head per diem would equal about 3,849,300 tons, the total import of food-grain to the Presidency, from August 1876 to April 1877, has been only 417,839 tons. The increasing demand on the stock at Bellary, for Maisur territory, is noticeable, the export of grain from Bellary being—

	To		Total.
	Maisur.	Haidarabad.	
	Tons.	Tons.	Tons.
From 3rd to 31st March 1877	285·8	911·6	1,197·2
During April „	660·0	1,604·2	2,264·2
Up to 26th May „	822·1	1,649·9	2,472·0

The food grain available at the ports, for inland transport, was at the end of May 1877—

		Tons.
Madras	25,000	35,000
On sea	10,000	
Negapatam		3,000
Beypur station, and some in boats		6,500
Total		44,500
Say		45,000

This stock will be moved up-country by the end of the current month, and Government are not aware of any further quantity being on its way, or ordered; there is no accumulation at the up-country Railway stations. It is probable that the price grain has now reached may induce increased importations, yet, if the railway power is not made use of with regularity, there will be very serious ground for apprehension. If any material diminution of the grain traffic inland occurs for a fortnight, it will be found impossible to carry up the quantity thus deficient, in addition to the ordinary daily demands.

The state of trade causes this Government anxiety. The pressure of the existing high prices is rapidly adding to the numbers whose sole dependence must be State aid, not only in those

districts which have been noticed as distressed, but in others; and reducing to abject poverty many of those who should have maintained themselves throughout, had prices similar to those in the famine districts of Bengal in 1874 prevailed in this Presidency.

The Government of India, in its letter No. 557, of the 29th June 1877, to the Government of Madras, said:—

2. The prices given in your letter are contrasted with those of 31st March 1877:—

[*Gazette of India*, 21st April 1877.]	SIRS PER RUPEE OF							
	RICE.		CHOLUM.		RAGI.		CUMBOO.	
	June 5.	March 31.	June 5.	March 31.	June 5.	March 31.	June 5.	March 31.
Kistna	8·45	8·26	11·15	10·97	12·94	13·9	10·38	10·53
Nellor	7·78	7·87	9·64	10·	11·74	11·88	10·06	9·8
Chingleput	8·90	9·40	9·05	10·98	10·72	11·26	...	10·78
South Arcot	8·75	...	11·	...	11·5	...	21·75	...
Trichinopoly	7.6	8·12	13·2	16·8	10·3	10·87	9.7	10·32
Tanjor	8·	...	10·	...	12·18	...	10·81	...
Madura	8·2	8·47	10·4	12·15	9·8	10·46	9·7	11·08
Tinnevelly	8·25	8·40	11·25	9·	10·75	11·47	11·	10·85
Kurnool	6·95	7·29	8·06	8·79	9·51	9·92	8·92	8·88
Cuddapah	7·73	7·91	8·66	9·53	9·25	9·91	8·92	8·36
Bellary	6·83	7·41	7·56	9·05	8·25	9·30	7·29	8·64
North Arcot	7·9	8·58	8·9	10·58	9·8	10·38	8·2	8·91
Salem	7·43	7·70	9·	9·09	8·81	9·26	8·12	8·93
Coimbator	7·40	7·62	8·41	9·14	8·89	9·55	8·61	10·61

[*Gazette of India*, 23rd June 1877.]	LBS. PER RUPEE.		FOR ANNAS					
	Rice.	Dry grain.	1		1¼		1½	
			lbs.	oz.	lbs.	oz.	lbs.	oz.
Kistna	17·84	23·95	1	7·95	1	13·93	2	3·92
Nellor	15·90	21·98	1	5·98	1	11·47	2	0·97
Cuddapah	14·75	17·98	1	1·98	1	6·47	1	10·97
Kurnool	14·31	17·94	1	1·94	1	6·42	1	10·91
Bellary	13·82	14·93	0	14·93	1	2·66	1	6·39
North Arcot	15·24	16·89	1	0·89	1	5·11	1	9·33
Chingleput	17·42	19·69	1	3·69	1	8·61	1	13·53
South Arcot	1·699	22·88	1	6·88	1	12·60	2	2 32
Salem	14·79	17·55	1	1·55	1	5·94	1	10·32
Coimbator	15·14	17·42	1	1·42	1	5·77	1	10·13
Madura	17·09	21·36	1	5·36	1	10·70	2	0·04
Tinnevelly	16·48	22·66	1	6·66	1	12·32	2	1·99
Malabar	18·17	24·20	1	8·20	1	14·25	2	4·30

3. Since June 5th the upward tendency of prices has continued; but the table in the margin shows that, except in Bellary, a man can everywhere procure for 1 anna more than the 1 lb. ration which in Bombay has been found sufficient for health; while in seven districts that sum will procure more than 1½ lbs. Under the new scale the conditions of relief labourers are still more favourable.

4. As to the supply of food-grains, although the statement shows a falling off in the imports into the Madras Presidency by sea, the last three weeks have witnessed an improvement in the shipments of rice from both Calcutta and Burma.

[*Gazette of India*, 1877.]	TONS.	
	By sea.	From Raichor.
April 7th	17,768	2,050
„ 14th	22,956	1,550
„ 21st	17,634	1,760
„ 28th	18,526	1,570
May 5th	15,666	3,100
„ 12th	16,583	3,115
„ 19th	16,295	2,378
„ 26th	14,441	1,728
June 2nd	12,372	1,883
„ 9th	14,663	3,672
„ 16th	10,570	2,178
„ 23rd	8,138	2,378

5. His Excellency the Governor-General in Council is of opinion that the rise of prices is not excessive, and considers it a fortunate circumstance that the rates are keeping up,—thus holding out inducements for the importation of food by trade. It is not improbable that this rise may lead to increase in the numbers on the works and in receipt of gratuitous relief; and so may augment the drain on the public treasury; but this is a less evil than that which would result from the plan of purchasing grain on behalf of Government. This principle is subject to modification in the case of remote localities where private trade may be inactive. The best course would be for the Government to advertise for supplies delivered at the nearest spots to which there are facilities for inportation, and to give relief in the shape of food.

The Government of Bengal, in its letter No. 2336, dated 31st July 1877, to the Government of India, said:—

2. The returns of exports of food-grains to coast ports, furnished by the Calcutta Custom-House have been misleading. No preventive officer is posted on vessels clearing for

coast-ports with cargoes of grain, and the Customs returns have been made up from the shipping passes, which represent merely the amount of grain that the applicants for passes think it possible they may ship, and do not represent that actually shipped. In some instances the shipping passes are returned to the Custom-House with a note of short shipments or re-lands endorsed thereon; but generally the passes are not returned, and it is *assumed* in the returns that the whole amount passed was shipped.

3. In the "Monthly Commercial Guide," published by the Collector of Customs, the figures prepared from the shipping passes, less known re-lands and short shipments, are shown. No importance has been attached, either by the Customs authorities or by the trade, to the correctness of the statistics of exports to free ports.

4. The extent of the error in the Calcutta export returns is to be measured by the figure of the Madras imports, and in that case it is very serious.

5. In future, a preventive officer will visit every vessel before she clears, and take extracts from the cargo-books of the actual grain shipped.

The present stock of rice amounts to—

	Maunds.
At Baliaghatta and Wooltadingi	920,000
„ Hatkhola and Koomertooli	650,000
„ other marts within Calcutta	925,000
„ Tallyganj	215,000
„ Chitlah	20,000
„ Kidderpur, Moonshiganj, and other adjoining marts	500,000
„ Sibpur, Ramkrishtopur, Howrah, Sulkeah, Ghoosoory, Bally, &c.: say	1,200,000
„ the Railway Jetties and at other outlying places, such as Gurreah, Kassipur, Baranagar, say	570,000
Total maunds	5,000,000

As regards the exports by sea, the demand is met from the reduced stocks in the hands of the aruthdars, as well as by daily importations; and new rice, as fast as it comes to Calcutta, is exported, without there being anything left to replenish the reduced stocks of Calcutta.

8. During April, May, and June 1877, 3,950,000 maunds of rice were registered at the inland trade registration stations as *en route* to Calcutta. Besides this, a good deal comes in that is not registered; so that there can be no doubt as to the existence of a considerable stock in the city.

9. It is impossible to form any accurate estimate of grain in the country. It is not collected in large warehouses and marts, but scattered in small quantities in every village. The brokers and boatmen go round and buy from house to house, and in due course the rice reaches the market. In Rungpur and Dinajpur there is a large stock awaiting the rise of the rivers, and is now being moved into the market in Eastern Bengal. In some places the people have sold too much rice for export, and have brought upon themselves an enormous rise of price of food-grain: this temporary evil applies chiefly to Chittagong and Orissa.

The result of the orders to examine the cargo-boats has been, in the case of the first vessel boarded, to show that, in lieu of 50,020 bags entered in the Customs returns, and 48,960 bags in the manifest, only 23,663 bags were really shipped.

Exports of Rice and Paddy from Calcutta by Sea.

MONTHS.	MAUNDS OF EXPORTS FROM CALCUTTA, AS PER															
	CALCUTTA CUSTOM-HOUSE RETURNS. To Ports.				MANIFESTS IN THE "CALCUTTA COMMERCIAL GUIDE." To Ports.				STATEMENT OF IMPORTS IN THE MADRAS MONTHLY CUSTOMS STATEMENTS. To Ports.				STATEMENTS OF EXPORTS IN THE "GAZETTE OF INDIA." To Ports.			
	Madras.	Other coast.	Foreign.	TOTAL.	Madras.	Other coast.	Foreign.	TOTAL.	Madras.	Other coast.	Foreign.	TOTAL.	Madras.	Other coast.	Foreign.	TOTAL.
1876.																
November	6,171	121,028	344,657	471,856	1,167,079	388,560	406,805	1,962,444	608,280	...	...	608,280	...	...	...	...
December	2,708,725	208,939	586,932	3,504,596	1,581,466	347,506	462,428	2,391,400	667,219	...	...	667,219	...	...	...	...
1877.																
January.	2,438,476	348,992	1,291,916	4,079,384	2,469,144	311,848	866,346	3,647,338	1,586,796	...	...	1,586,796	...	...	...	...
February	1,189,453	256,657	1,404,255	2,850,365	1,184,878	320,432	1,722,713	3,178,023	1,317,666	...	...	1,317,666	710,382	...	...	710,382
March	1,503,075	220,404	725,801	2,449,280	1,069,168	404,171	1,317,278	2,790,617	792,573	...	...	752,573	1,304,719	...	...	1,304,719
April	1,333,175	269,067	436,812	2,039,054	906,702	272,898	453,138	1,632,738	514,249	...	...	514,249	1,100,396	...	...	1,100,396
May	1,425,310	72,326	404,225	1,901,861	1,308,054	203,896	480,359	1,992,309	614,709	...	...	614,709	1,715,043	...	...	1,715,043
June	1,871,815	235,601	426,113	2,533,529	418,186	99,883	426,423	944,492	434,209	...	...	434,209	1,852,583	...	...	1,852,583
Total Maunds . .	12,476,200	1,733,014	5,620,711	19,829,925	10,054,677	2,349,194	6,135,490	18,539,361	6,495,701	...	...	6,495,701	6,683,078	...	...	6,683,078
Add—Total exports of paddy during the foregoing period, converted into rice, at the rate of 25 seers of rice to a maund of paddy,	78,654	51	23,028	101,733	52,561	5	17,923	70,489	22,669	...	...	22,669	61,370	...	...	61,370
Grand total, in rice maunds . .	12,554,854	1,733,065	5,643,739	19,931,658	10,107,238	2,349,199	6,153,418	18,609,850	6,518,370	...	...	6,518,370	6,744,448	...	...	6,744,448

The Governor-General, in his letter No. 36, of 22nd September 1877, to the Secretary of State for India, stated:—

In your Lordship's despatch No. 62, dated 9th August, is expressed approval of the orders enjoining publicity in cases where district officers find it necessary to purchase grain for the supply of any landlocked, foodless tract; and counsels vigilance in restricting the purchase of grain.

We submitted the reply in the margin.* My minute, dated the 12th August, has given in (paragraph 18) a statement of the principles which should guide the Government of India when any question arises of importing grain on Government account.[1]

2. I would add a short explanation of the principles which guide the Government of India, when we decline to import grain for the supply of the famine districts.

* *Telegram to the Secretary of State, dated 14th August 1877.*

"Our instructions about publication referred only to local purchases from trade. We decided at outset that private trade would import grain more efficiently than Government, and we have lately re-asserted publicly our determination not to interfere.

"Do you intend to say that you think it probable that Government ought to make large importations of grain?

"We can forsee no circumstances under which such Government interference with private trade would not be a ruinous mistake. Trade towards famine country from Bengal, Central and Northern India, is most active. We are convinced that far more food from abroad or elsewhere will reach Madras if we leave private enterprise to itself, and we should paralyse it by Government competition. Free and abundant private trade cannot co-exist with Government importations. Even if we anticipated failure in source of supply, we should still believe that Government interference would only decrease the total amount of food available, and aggravate the catastrophe.

"We cannot take upon ourselves any responsibility for a course which would in our opinion be fatal. Nor can we give calculations. Local estimates say that from four to five thousand tons of grain must be imported daily; grain actually ready for export on Great Indian Peninsula Railway reported to be 120,000 tons; and stocks in Bengal, Central and Northern India, large."

3. If prices do not greatly rise after a failure of harvest, and if imports are inactive, then the natural conclusion would be that there must be considerable old stocks in the country. When prices in a province approach famine rates, then we presume that if surplus food exists in other provinces, and if communication by water or railway be fairly good, traders will carry that food to the famine districts more cheaply, promptly, and directly than Government could possibly do. If there is one branch of internal trade which Indian traders fully understand, it is the grain-trade: they know what grain is wanted, whence it can be bought most cheaply, and where the need is sorest. Among the many contrasts between the system of Government importations adopted in 1874 and the private trade system of 1877, it may be mentioned that the Government importations in 1874 consisted of Burma rice; while private trade has in 1877 brought under contribution every province and every food-staple in India; wheat, barley, grain, two kinds of millet and pulses, have come from railway-stations in the Panjab, the North-Western Provinces, and Bahar, from the river Chenab on the north to the Soane on the south; rice, pulses, and Marwa millet from Bengal and Orissa; millets and pulses from Guzerat, Berar, the Central Provinces, and Rajputana. Burma has sent a small quantity of rice; but Burma rice rules dearer than the common varieties of Bengal rice, so traders have drawn but little.

4. Not only could traders do the work of supplying grain to Southern India better than Government; but it was obvious that the trade could make much larger importations than Government. If once the Government were to begin importing grain, the first rumour of any impending intrusion of Government action into the field of private enterprise would paralyse the confidence of the whole trade, send up prices at the source of supply, keep up prices in the famine country, and thus check, indirectly and directly, imports. The Government having once entered on such an undertaking, there would be no stage at which it could arrest its ruinous course, but would find itself responsible for providing grain enough for every village—not merely in Madras and Maisur, but also in tracts of Northern India to which famine might spread. Any partial substitution of Government agency for private trade was impossible. We had to choose between either leaving private trade alone or taking upon ourselves the whole of its natural work. If we had adopted the latter alternative, it would probably have cost the Government more to lay down one ton of grain than it would have cost the trade to lay down two. We had before us the financial results of the Bengal famine of 1874, where the cost* of buying and transporting Government grain came to 6,474,000*l.* out of a gross expenditure of 9,177,000*l.*, or to 4,259,000*l.* out of a net cost of 6,402,000*l.* The famine of 1877 has been severer, and has extended over a far larger area, than the famine of 1874; if we had taken the grain supply into our hands, the cost of famine relief in 1876—78, great as it is, must have been indefinitely increased. If Government had undertaken to import grain for the supply of Southern India, we should, even if we had succeeded in our undertaking, have made a stride, of which the magnitude can only be conjectured, on the road to national bankruptcy.

* The Bengal famine charges, in Part V. of Sir Richard Temple's final Report of the Bengal Famine of 1874.

Apart from financial considerations, we were convinced that the safety of the afflicted populations would be best secured by the adoption of the course we took. It must be admitted that Government cannot avert all death from famine when the drought is so severe and affects so large an area as in the present season has been the case; and I am convinced that under present circumstances there would have been more misery, more death, and a less constant supply of food in the districts of Southern India, if Government had undertaken to

[1] See page 35.

import grain than have happened under the policy which the Government of India, with your Lordship's approval, have adopted.

6. These were some of the considerations which influenced our decision when the question of importing grain arose, in the autumn of 1876. When the same question came before us in July 1877, such considerations gained renewed force from the experience of the preceding eight months. The proposal to import grain by Government agency had been put forward during the autumn of 1876, both at Bombay and Madras. The Governor, Sir Philip Wodehouse, discussed the question with his colleagues; and they decided not to buy grain, but to trust to trade for the supply of the country. Grain was forthwith consigned to the Dakan by traders in enormous quantities; insomuch that the Great Indian Peninsula Railway was blocked with grain early in November 1876. By strenuous effort, the block was cleared, and the supply by rail and seaboard to the famine districts of Bombay has since November sufficed for the needs of the country. Prices have indeed been very dear; but though some parts of the Bombay famine tract drew their supplies from railway-stations or seaports 130 miles off, still there has always been enough grain in the markets.

7. The Madras Government, in October 1876, decided to buy 30,000 tons of grain, as a beginning. This decision was not known to the Government of India until the transaction was concluded. The purchases were effected with just so much secrecy as served to alarm the trade; and in Calcutta (the chief source of the Madras rice-supply) dealers were, until the middle of February, possessed with a fear that further large purchases by Government were imminent. Interference with the grain market was stopped by the Government of India. As no further action of the kind was taken, the stream of private trade set in during December, and has continued ever since. Private trade has sent by sea to Madras, from marts in Northern India, more grain than the railways and other means of transport could carry into the interior. During the August and September since the failure of the summer rains and the occurrence of a second famine, private trade has carried into the districts of Madras and Maisur a daily average of 4,000 to 5,000 tons of food. This result must be largely due to the assurances published by the Governments of India and Madras in June last, to the effect that Government would not interfere in the grain trade.

8. The grain bought by the Madras Government is being kept in reserve, and so its presence does not operate to keep prices low, and thereby to check importations. The Members of the Madras Government are strongly of opinion that their purchase of 30,000 tons, and their placing the greater part of that supply in depôts up the country, paved the way for private trade, and encouraged its steady flow. It is true that private trade increased after the Government purchases had been made; but trade did not acquire its full stream till August 1877, and did not flow freely till December 1876—that is, weeks after the Government transactions had been concluded; whereas the Bombay importations set in with full tide early in November. I do not say that the purchase of 30,000 tons permanently affected the flow of private trade in the face of the enormous demands of the Madras and Maisur country; but I fear the transaction must have checked private importations—it is certain that the Government grain occupied railway wagons to the exclusion of merchants' consignments.

9. Though these considerations guided our decision during the present famine, yet we must not be understood to say that occasion never did, and never can, arise, when Government purchases of grain might be necessary.[1] The Orissa famine of 1866 may have been such a case. Orissa was a small province; it had then few transactions with other parts of India; its marts were not frequented by merchants from other provinces; there were practically no land communications between Orissa and other provinces, save for pilgrims; and communication by sea was at that time cut off during the most critical season of the year. The famine of 1866 in Orissa has been a case in which Government might have promoted grain importations. In the famine of 1874, the Bahar famine tract, with its population of nineteen millions, was divided by the Ganges into nearly equal parts: one part, south of the Ganges, possessed two railways, metalled and bridged roads, and large trading populations; the other part, north of the Ganges, had no railways, not a single metalled and bridged road, and few traders. Thus the Government was able to occupy North Bahar with its agency and with its grain imported from the east; while the wants of South Bahar were met by trade with supplies from the west. Further, all the Government grain came by railway or river from the east, while the railway from the west was left exclusively for traders. The famine tracts of Southern India are not landlocked, like Orissa; nor are their seaports closed for months. There are several railway lines in the south of India; a number of seaports are available on the east and west coasts; Madras possesses a better system of metalled and bridged roads than any part of India; much of the Bombay and Maisur country is also well supplied with roads. There was thus every facility for the free action of trade.

10. If your Lordship were able to concur generally in the views now expressed, the hands of the Government of India would be greatly strengthened.

11. Trade will be more prompt than heretofore to supply the wants of provinces where scarcity of food may prevail. After the brisk and lucrative trade of this year, traffic on the Madras guaranteed railways will never fall again to the low ebb of former years.

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[1] See page 35

THE FAMINE IN THE PROVINCE OF MAISUR.[1]

November 1876 to December 1877.

The province of Maisur comprehends 27,000 square miles and a population (census of November 1871) of five million persons, or 186·7 to the square mile.

Maisur is divided into two parts,—one called the Maidán; the other, the Malnad.

The Maidán, or level country, is the plateau towards the east, comprising two-thirds of the area of the province, cultivated where the soil is good, and yielding pasturage when it is poor. The famine of 1876-78 here prevailed.

The Malnad is the high country to the west, covered with rich forests of teak and bamboo; is scantily populated; and grows little, save rice.

The south-west monsoon sets in after the middle of May, and continues till the end of September; in October, the wind changes to the north-east. The average rainfall per month, per district, is given below:—

MONTH.	Bangalor (figures of Colonel Puckle): average of 30 years.	Average of 8 years, record of observatory.	Kolar: average of 4 years, by Lieutenant Kensington, R.E.
	Inches.	Inches.	Inches.
January	0·26	0·103	0·000
February	0·18	0·093	0·266
March	0·65	0·488	0·298
April	1·48	0·980	0·704
May	5·06	5·116	5·577
June	3·21	3·691	2·950
July	3·71	4·358	2·485
August	6·11	6·277	4·471
September	6·33	7·390	7·999
October	5·81	6·290	5·835
November	1·67	1·138	1·689
December	0·81	0·456	0·460
TOTAL	35·28	36·380	32·734

DISTRICT.	Average of 30 years, 1837—66 (figures by Colonel Puckle).	5 years: 1871—75.	Recorded in the *Gazetteer*.
Bangalor	35·3	35·0	36·0 (1837-74)
Kolar	...	25·4	29·0 (1868-74)
Tumkur	30·2	27·4	32·0 (1837-74)
Maisur	28·1	24·3	28·9 „
Hassan	...	34·4	36·0 (1868-74)
Kadur	...	35·7	30·3 (1869-74)
Shimoga	27·6	38·4	36·0 (1837-74)
Chitaldrug	...	23·5	24·0 „

The prevailing soil in Maisur is of decomposed gneiss, red in colour, poor in character when compared with the rich loam of Hindustan or with the black soil of the Dakan. In the north part of Chitaldrug the soil consists of black cotton soil. In the red soil, ragi (*Cynosuru corocanus*), known in Upper India as Mandwa or Marwa, is shown. Other crops are of little account compared with ragi.

As far as dry cultivation is concerned (85 per cent. of the arable area), there is only one crop in the year, no rotation of crops, and nothing corresponding to the rabi and kharīf of Northern India.

Ragi is sown, year after year, in the same field; its production depends on the occurrence of both monsoons. All the cultivator's eggs are in one basket.

In a country so near to the sea as Maisur is, the climate has not the monotonous uniformity characteristic of the plain of Hindustan.

The irrigated area of the province is 15 per cent. of the total cultivated area; the irrigation is given partly from tanks, and partly from wells and rivers. There are 38,000 tanks, the revenue from which amounts to twenty-four lakhs of rupees. They depend on local rains; are 8 to 10 feet deep at the deepest part; and cover an area greater than that of the land irrigated.

On the irrigated land is sown rice, chiefly, with a little sugarcane.

Near Seringapatam and Maisur, Rs. 400 have been paid for one acre of wet land.

[1] This report of 35 pages is taken from the report of 197 pages on the Maisur Famine, by C. A. Elliot, C.S.I. His Excellency the Viceroy, in his Minute of the 14th November 1878, said:—
"I am deeply indebted to Mr. Elliott for his excellent report."

The irrigated land yields 25 per cent. of the whole produce of the country.

Except by Brahmins, rice is not much eaten. In Maisur, the life of the agriculturist is very easy; the fields are ploughed through twice or thrice, sown, and left till the crop is matured.

This system of agriculture fosters the habit of emigration to the Malnad during the cold weather. About 350,000 persons thus annually emigrate; the wages usually given are 4 annas per man, 2¾ annas per woman, daily; the savings brought here by these people (employed for four months, and consuming half their pay) is 18¾ lakhs of rupees, or one quarter of the land revenue of the province.

The tenure is raiyatwari. The Bombay Settlement Department is at work surveying, classifying, and assessing the land; when the work is done, each block of land has a survey number and its revenue fixed for 30 years. The raiyat who occupies pays, whether he cultivates or not; but he can resign on giving due notice.

Where the Bombay system has not yet been introduced, the village accountant (*shanbhog*) certifies under what number any particular plot is recorded in the village papers.

The land revenue tax does not exceed one-tenth or one-eighth of the value of the gross produce at ordinary prices.

	Sirs per acre.	Sirs per rupee.	Land-tax: Rs.
Dry land	320 ragi	40	2 average 1.
Wet land	640 rice	16	3 to 10, average 4.

The Maisur raiyat is, or has been, better off than any class of cultivators in India; but a custom has grown up under which he possesses a transferable interest in his land.

Any one who tests the "jamabandi," the village papers, will learn that the old owner is the tenant-at-will of a distant proprietor to whom he pays half the crop.

The glory of the raiyatwari system—the union of cultivation and possession rights in one person—is departing. Cultivators on this tenant-at-will system are less able to resist famine than the proprietary raiyats.

The village officials are:—

The *Shanbhog*, or village accountant and keeper of the register of landed interests.

The *Patel*, or the most influential of the raiyats, on whom the Government relies for the carrying out of all its orders within the village limits.

These two officials receive a percentage on the revenue of the village, generally in the form of a reduction in the assessment of their own fields. From the time the Settlement Department begins its operations, until the assessment is given out, the Patel receives nothing at all.

During the famine, many taluks were passing through this stage, and *the Patels* (remuneration gone) *were both unwilling and unable to exercise the influence and occupy the position which theoretically belonged to them, and which the Government earnestly desired to utilise.* [1]

The post of Patel is hereditary; when it becomes vacant, the most capable male is selected to fill it. If the selection be left to native subordinates, unchecked, it becomes a matter of bargain; if the Patel be frequently punished or lightly dismissed, the post loses its value. A good Patel is the father of his village—the connecting link to prevent the disintegration of the raiyatwari system and the dispersion of the raiyats—the man to whom the raiyat looks for a loan when unable to pay his revenue, and the labourer for an advance of food when work is slack.

These duties, not too onerous in ordinary years, become an intolerable weight in the time of famine. They were called on, as the Agents of Government in all kinds of relief, to prevent any death from starvation, to report every case of emaciation, and to send in the sick to hospitals.

The reports of any dereliction were usually followed by "fine the Patel," "dismiss the Patel."

If the Patel receive his dismissal with gladness, and if no one can be induced to fill his post, what wonder?

The province is divided into—

Divisions.	Districts.
Mandidrug	Bangalor. Kolar. Tumkur.
Ashtagram	Maisur. Hassan.
Nagar	Kadur. Shumoga. Chitaldrug.

The districts vary from 2,200 to 4,400 square miles in area, with a population varying from 500,000 to 900,000 and a land revenue of nine to ten lakhs of rupees. They are divided into eight to ten taluks with about 300 villages a-piece; the taluks are sub-divided into hublis of 30 to 40 villages, over which is a shaikhdar.

The shaikhdār receives Rs. 10 to 20 a month, and the 'amaldār, Rs. 100 to 250.

The shaikhdār may rise to the rank of peshkār or of sarishtadār.

There is no water-communication; but the country is famous for its good and abundant roads.

[1] See pages 13 and 26.

The following table shows the exports and imports :—

Article.	Average of 1875-76.		1876-77.	
	Imports.	Exports.	Imports.	Exports.
	Rs.	Rs.	Rs.	Rs.
Arecanut	...	10,76,429	...	8,185
Cocoanut	...	1,41,768	...	35,505
Coffee	...	14,86,151	...	22,03,343
Sugar	...	4,80,333	...	3,98,513
Piece-goods	46,63,018	...	30,39,367	...
Coarse cloth	6,26,521	...	5,58,427	...
Cotton and cotton thread	7,80,081	...	4,60,232	...
Gold and silver	24,10,381	...	14,39,128	...
Paddy	...	12,11,287	...	15,55,000
Rice	4,88,147	...	93,08,005	...
Wheat	4,60,889	...	21,12,482	...
Ragi	...	9,24,610	73,44,490	...
Other food-grains	8,767	...	38,87,243	...
Total	94,37.804	53,20,573	2,81,49,372	42,00.546

In 1876, by reason of the local failure of produce, a little over two and a quarter million pounds worth of food was imported into the province.

In 1875 the rainfall was very deficient, and the crop of ragi almost universally lost :—

1875.	Bangalor (Observatory).	Kolar (head-quarter gauge)	Kolar (Lieut. Kensington's figures).	Remarks.
	Inches.	Inches.	Inches.	
March	2·0	0·70	0·40	The quantity guaged—
April	0·9	0·55	0·80	in 1875 was 21 inches.
May	4·0	2·27	2·68	„ 1874 was 43 „
June	3·4	3·23	4·37	„ ordinary years, 34 inches.
July	2·3	0·95	1·16	
August	4·5	3·07	3·15	
September	2·1	2·01	1·14	
October	2·2	2·27	3·24	
November	0·6	0·12	0·40	
December	0·1	1·00	0·50	
Total	32·1	16·20	17·90	

and in 1876 the quantity guaged for the whole province was only 17½ inches.

Head-quarter Districts.	Rain-fall in 1876, in inches.										
	March.	April.	May.	June.	July.	August.	September.	October.	November.	Decr.	Total
Bangalor	1·3½	0·51½	4·35½	2·33	1·82	4·0	1·72	0·71½	0·58	...	17·27
Kolar	0·41½	0·7	1·69	4·44	2·89	1·11	0·80	0·34	1·45	...	13·20½
Tumkur	0·39	0·72	3·50	2·90	4·44	4·98	2·78	...	0·4	...	19·75
Maisur	1·32½	...	6·3½	1·0	1·44	7·55	2·72	0·80	0·25	...	22·2
Hassan	0·92	0·95	3·24	1·52	5·31	1·98	2·45	0·36	...	...	16·73
Kadur	3·1¼	2·96¼	2·90	2·71½	6·99¼	1·65	1·6	0·70	0·60	...	22·59¼
Shimoga	1·50¾	2·25	0·20	2·73¾	7·91¼	1·96¼	2·43¾	0·78¾	...	...	19·79¼
Chitaldrug	0·48¼	1·90	1·70	1·90	2·58¾	0·50	0·90	...	...	...	9·97
Total	8·98¾	9·86¾	23·82	19·54¼	33·39¼	23·73¼	14·86¾	4·70¼	2·92	...	141·33¼
Average	1·12	1·17	2·98	2·44	4·17	2·97	1·86	0·59	0·36	...	17·67‡

Thus,—with stocks exhausted, prices double the usual rate, the main crop almost wholly lost, the people reduced to distress through the failure of the crop of the preceding year, tanks empty, the native subordinates inefficient and disorganised,—Maisur entered on the famine of 1877.

On the 8th November 1876, the first report on the distress in the province was submitted to the Government of India.

On the 27th November 1876 the Government of India stated :—

The President in Council considers it undesirable to concentrate large bodies of labourers on works at a distance from their homes, and would much prefer that minor works should, as far as practicable, be carried on at numerous places throughout the distressed localities.

The following statement represents the crop harvested during 1876-77 :—

Districts.	Taluks in which the produce, as compared to an average crop, was			
	⅝ and over.	From ⅝ to ⅜th.	From ⅜th to ⅛th.	From ⅛th to nil.
Bangalor	...	1	7	1
Kolar	...	3	7	...
Tumkur	...	...	4	4
Maisur	7	3	1	...
Hassan	3	3	3	..
Kadur	3	1	2	...
Shimoga	5	1	2	...
Chitaldrug	...	1	5	2
Total	18	13	31	7
	31		38	

The average produce of a field of ragi—

= 2 Khandis = 640lbs. = 8 mans per acre.

= Support required for two mouths for one year.[1]

The full average harvest = 69 × 16 = 1,104.

$$\text{The actual harvest} = \begin{cases} 18 \times 10 = & 180 \\ 13 \times 16 = & 78 \\ 31 \times 3 = & 93 \\ 7 \times 1 = & 7 \end{cases}$$

$$358$$

Now, if a half of the average harvest (552) would be sufficient to support life, the figure of production (358) shows that there was food for three and a quarter millions only, out of a population of five millions.

Hence we have—

Number without food	1¾	millions.
„ supported by the coffee plantations	¼	„
„ requiring support	1½	„

This estimate is confirmed by the fact that the census shows—

that one and a quarter millions died or emigrated, and quarter million, at the time of greatest pressure, was supported by the Government.

The following table shows that the famine extended to nearly four millions out of the five millions of the province :—

	Square miles.	Population.	No. of Taluks.
Distress intense	15,249	2,673,198	38
„ severe	3,840	1,184,288	13
Total	19,089	3,857,486	51

On the 6th January 1877 it became known that numbers were leaving Maisur for the Madras Presidency, where relief (it was alleged) was liberally administered.

The Famine Delegate's action[2] in imposing severe tasks on the people of the Madras Presidency stopped the emigration, and even turned it, so that Madras people began to enter the Maisur Province in the hope of getting relief on easier terms.

In February 1877 Sir R. Temple visited Maisur. It would have been fortunate if he had had the necessary information supplied to him, to shew the real extent of the calamity.

[1] The *minimum* quantity of food required to support a person (adults and children taken together) is supposed to be 320lbs. per annum. The figure 16 represents a full (a 16-anna) crop.

[2] Sir Richard Temple.

The best data were derived from Mr. Bernard's account of his visits to the Kolar district, in which the system was best worked, and in which relief-works were most efficiently carried out. Consequently, Sir R. Temple wrote—

"The officers of the Public Works Department were co-operating most fully with the civil officers in carrying out relief-works;"

and in his minute of the 14th February 1877 said—

"The relief operations in Maisur have been more economically conducted than in the districts of Madras. The carefulness exercised is very creditable to the local authorities.

"It appears to me most important that there should be a house-to-house visitation throughout the more severely affected tracts, so that cases of severe distress may receive timely succour. The existing organisation of village officials, supervised by salaried servants of Government (the shaikhdar in his hobli and the amaldar in his taluk), is the best that could be desired for carrying out systematic village relief. A well-directed system of village relief is necessary to prevent cases of disaster in districts where economy in relief expenditure has been practised from the beginning.

"I communicated unreservedly to the district and other superior officers my views regarding the situation in the tracts which I visited and the result of my experience of famine affairs in other parts of India."

The primary responsibility was imposed on patels; but in many villages no patels existed, and in many more they received no remuneration for their ordinary duties, and were not likely to be zealous in performing additional tasks. Patels in a state of abject poverty, supporting themselves by labour on the relief-works, were ordered to disburse relief in the first instance out of their own pockets; were told to send people able to work to relief-works,—no provision being made for their refusal; and all others to kitchens, provided they could bear the journey; but no instructions were given that, at every kitchen, sheds should be erected at which such people could be received. A conflicting order was given, that they should refer such people to the relief officers; but it was not shewn how this was to be done, or what the relief officers were to do with them. Nothing was said about permanently feeding in their homes, as long as they were in distress, the old, sick, and bedridden, who could neither work nor walk to a relief-house. The patels were to see that no traveller died of starvation; but this was beyond the power of the patels of towns, on the high roads crowded by wanderers. The shaikhdars were told to visit all their villages within ten days: were they to repeat the visit? No definite instructions were given as to the duties of the taluk relief-officers, nor any system of report provided, either as to the appointment of such officers or as to the character of their work.

The railway kept pouring in grain, chiefly rice:—

	Tons.	Daily average.
November 1876	9,943	331½
December „	11,562	373
January 1877	11,259	363
February „	13,130	469
March „	15,282	493

Besides, rice was being imported (no record kept) to the Malnad by the Western Ghats.

On the 28th February 1877, wages were fixed—

For a man at ¾ sirs ragi, plus 6 pies for condiments.
„ woman at ⅝ „ „ 3 „ „
„ child under 14 years ⅜ „ „ 3 „ „

These wages, at eight sirs of ragi per rupee, would cost 2 annas, 1½ annas, and 1 anna.

The numbers employed, week to week, are given below:—

District.	Sir Richard Temple's figures: 1st January.	1877. January 15th.	January 31st.	February 17th.	February 24th.	March 3rd.	March 10th.	March 17th.	March 24th.	March 31st.
Bangalor . .	12,983	7,265	8,909	5,886	6,922	8,071	11,957	11,832	16,015	19,786
Kolar . . .	8,500	758	3,237	4,326	6,874	5,794	3,616	5,637	4,954	8,499
Tumkur . . .	8,900	5,000	6,734	14,656	14,219	9,119	7,786	7,574	7,652	8,434
Maisur . . .	5,560	1,543	3,112	1,804	4,678	1,929	1,650	2,077	2,367	2,497
Hassan . . .	9,746	1,433	3,010	2,978	2,636	3,060	3,545	2,775	4,407	4,733
Kadur . . .	6,296	1,408	351	692	1,301	975	877	1,847	1,586	2,175
Shimoga . . .	1,236	661	1,161	676	639	640	675	670	697	854
Chitaldrug . .	6,000	2,974	2,191	3,542	3,841	3,925	5,295	6,200	6,687	8,709
Total Civil Relief Works . .	59,301	16,042	28,705	34,560	41,110	33,513	36,600	38,512	44,365	55,687
Public Works Department . .	...	...	...	28,788	...	30,794	30,794	31,052	31,052	31,052

In the province were 75 rest-houses (chattrams), where travellers and Brahmins were received and fed, with an endowment of Rs. 68,235 a year.

These buildings were first opened as kitchens in August 1876. In January 1877, when private charity was exhausted, the Chief Commissioner agreed to give Rs. 3,000 a mouth.

The same system of retardation through friction in the official machine was pursued here as in the case of relief works; there was the same readiness to distrust the discretion of district officers; if an officer applied for money, he generally got less than he asked, or was ordered to explain his unexpended balance, or was told that an adjoining district had asked for much less. This policy, however, could not do the same harm in the case of the kitchens as it did in the case of relief works. However stupid or callous a subordinate might be, he could hardly shut up his kitchen in the face of the starved and emaciated wretches. He might turn away labourers from a relief work when his funds ran out, even though he knew that in all human probability they could not find employment anywhere else; but he felt that it was a less risk to spend money without sanction on feeding the starving than to incur the responsibility of letting them die at his gate. Whatever any Deputy Commissioner chose to spend on feeding-houses was sanctioned perforce in the end.

The number fed in the kitchens is given below :—

Districts.	Beginning of January (Sir R. Temple's figures).	31st January.	17th February.	24th February.	3rd March.
		By provincial returns.			
Bangalor	11,527	...	7,523	14,253	14,253
Kolar	3,763	4,749	...	2,129	511
Tumkur	2,100	...	2,471	2,029	2,471
Maisur	3,699	1,000	3,274	3,274	3,274
Hassan	4,249	526	...	342	405
Kadur	1,546	...	258	258	512
Shimoga	1,430	...	150	177	398
Chitaldrug	1,780	233	...	...	1,471
TOTAL	30,094	...	...	...	23,295

On the 17th January 1877, Major Chrystie, R.E., and Major Gomperts, Deputy Inspector-General of Police, visited the kitchen and reported—

that almost every error which the human mind can conceive was being committed.

On the 18th January 1877, the Chief Commissioner ordered that, six miles outside of Bangalor, resthouses (chattrams) should be established and wanderers detained there till they could be sent to their own villages.

The stopping of immigration and the deporting of those who had immigrated took firm hold of the minds of the authorities in Bangalor; but it seems doubtful whether, under any circumstances, such a policy could have been successful, unless large relief works had been opened, to which the paupers could have been sent, and on which employed (in thousands) on a wage which afforded them the means of subsistence. The Canarese proverb says, "Let the poor man go to the town;" but the flocking of beggars into large towns is no peculiarity of Maisur, but common to all India. There were no practicable means of effecting the object aimed at. The people would probably have died out of sight, the extent of the calamity would not have been known, and the Government would have been deluded as to the extent of the famine. The small scattered relief works,—spasmodically opened and closed at uncertain intervals, affording a bare subsistence on piece-work rates for able-bodied adults, and making no provision for their families or for those enfeebled by fasting—did not suffice for the masses of the people. The error consisted in supposing that the immigrants who left their villages were the only persons in want; they were, in truth, the symptoms of far-reaching and profound distress.

The measures taken to prevent immigration and to deport wanderers were altogether ineffectual.

The kitchens served but as hostelries, at which the starving population were fed on the journey to Bangalor.

On the 29th March 1877 the following rate in the kitchens was tentatively authorized :—

Man or woman . . $\frac{9}{8}$lbs. of ragi flour, with 3 pies for condiments.
Child under 10 years . $\frac{9}{16}$ " " $\frac{3}{2}$ " "

The number of applicants is given below :—

District.	1877. Week ending March 3rd.	10th.	17th.	24th.	31st.
Bangalor	14,253	12,878	10,354	14,240	16,753
" (municipality)		6,576	6,165	6,612	6,330
Kolar	511	1,831	4,198	5,371	6,805
Tumkur	2,471	10,030	18,205	16,198	16,092
Maisur	3,274	1,268	1,941	1,979	2,800
" (municipality)		1,716	1,609	2,241	2,207
Hassan	405	864	1,455	1,963	2,122
Kadur	512	515	838	1,102	1,572
Shimoga	398	508	331	436	490
Chitaldrug	1,471	1,685	1,765	2,329	2,803
TOTAL	23,295	37,361	46,861	52,471	57,974

On the 31st March 1877, the State supported :—

	No.	Total cost after 31st March 1877.
		Rs.
In Kitchens	58,000	120,000
On Civil Relief Works	56,000	620,000
Ordinary Public Works	31,000	?

The first formal reports sent in by Commissioners of Divisions were drawn for the period ending 15th March 1877: they do not betray any depression or alarm for the future.

In April 1877, Sir R. Temple re-visited Bangalor, and recorded in his Minute of the 6th April,—

"The total numbers on relief are 116,000, equal to 2 per cent. of the total population of Maisur, or 3½ per cent. of the population of its distressed tracts. An unusually large number of Maisur people had emigrated to the coffee districts, and, though they are now coming back, yet for some months they obtained subsistence by working on the plantations. When the failure of season, which is now going on for the third year consecutively, is remembered, these numbers appear very moderate, and shew, firstly, that the people must be in good condition and must have some self-sustaining power; and secondly, that the authorities are administering relief very economically.

"2. The results of relief administration in Maisur still compare favourably with the neighbouring districts of the Madras Presidency, namely, the Ceded Districts and Kurnul, even after all the economy and reduction introduced into those districts.

"3. The labourers on the relief works are all employed on piece-work, at rates somewhat cheaper than the piece-work rates of the Public Works Department in ordinary years. They can earn in this way enough to support themselves, and are in fairly good physical condition. Their earnings on piece-work are estimated to amount to two annas per diem for adult men. The people who receive gratuitous relief at the relief centres also do a certain amount of light work. From the helpless poor, relieved at their villages through the agency of the *patels* (village headmen)? no work of any kind is exacted."

The tone is hardly one that would be adopted by any person who followed the history of events and studied them; nor one that can be taken in the light of the dark and dreadful months that followed.

Considering the tendency to strict economy which, laudable in itself, produced the unfortunate result of starving the relief-works, and the subsequent history of the famine,—this Minute must have encouraged the Maisur Government in the disastrous course it was already inclined to follow.

From April to August 1877 embraces the most terrible part of the famine.

The following is a statement of the finances in 1876-77 :—

	Rs.
In 1876-77 the land revenue demand was	73,00,000
Remissions	8,50,000
Actually collected	60,75,000
Expenditure—	
Loss of revenue	22,25,000
Deficit on miscellaneous house and trade tax	3,50,000
Famine relief	6,00,000
Normal excess outlay, Department Public Works . . .	10,25,000
Loss through famine in 1876-77 . .	42,00,000

The tables below show the number fed gratuitously and that on civil relief-works during the five months, April to August 1877 :—

Relief-works in 1877.

Districts.	April				May				June					July				August				September
	7th.	14th.	21st.	28th.	5th.	12th.	19th.	26th.	2nd.	9th.	16th.	23rd.	30th.	7th.	14th.	21st.	28th.	4th.	11th.	18th.	25th.	1st.
Bangalor . District .	13,604	7,705	4,709	4,722	5,661	5,270	3,806	4,495	4,979	5,424	5,270	5,284	5,697	5,416	6,954	7,427	7,627	7,795	6,793	8,409	7,580	9,346
Bangalor . Municipality.	536	320	566	600	920	1,158	824	301	60	624	786	917	925	1,109	1,053	1,080	1,092	938	845	1,062	803	922
Kolar	4,150	4,040	4,451	6,629	6,534	5,212	4,730	4,887	5,191	4,809	6,110	4,398	4,440	4,605	3,981	5,127	5,257	4,191	4,636	4,608	4,401	4,571
Tumkur	5,654	5,773	3,781	4,048	4,676	4,959	5,529	4,712	5,494	5,785	6,071	4,819	4,586	4,550	4,575	3,524	3,176	2,943	2,692	2,565	3,197	4,849
Maisur . District .	343	145	341	217	798	942	700	876	2,171	1,776	1,917	1,666	1,574	1,171	924	1,490	709	671	544	814	795	871
Maisur . Municipality.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	777	77	64	69	53	71	76
Hassan	1,468	1,111	1,046	1,560	1,320	1,698	1,761	1,736	1,681	1,844	1,679	1,844	1,629	1,806	1,996	2,085	1,633	1,392	1,824	1,802	1,432	1,709
Kadur	1,643	1,860	2,637	1,682	1,419	1,599	1,232	979	546	516	579	392	446	690	466	482	293	234	902	705	904	652
Shimoga	510	779	731	1,078	1,028	1,363	1,234	1,609	1,493	1,425	1,123	1,026	1,219	1,154	1,327	1,277	1,274	1,249	1,159	1,216	1,322	1,270
Chitaldrug	4,139	7,426	9,424	9,534	9,996	10,080	10,117	5,884	7,233	7,086	6,982	5,812	5,003	4,502	4,994	4,884	4,737	4,850	4,822	5,111	5,139	5,029
Total number .	32,047	29,159	27,686	30,070	32,352	32,281	29,933	25,479	28,848	29,289	30,517	26,158	25,519	25,003	26,270	28,153	25,876	24,327	24,296	26,345	25,644	29,295

Kitchens in 1877.

Districts.	April				May				June					July				August				September
	7th.	14th.	21st.	28th.	5th.	12th.	19th.	26th.	2nd.	9th.	16th.	23rd.	30th.	7th.	14th.	21st.	28th.	4th.	11th.	18th.	25th.	1st.
Bangalor . District .	19,315	24,969	36,174	38,667	40,886	45,414	47,157	44,969	41,929	42,025	38,038	40,709	39,718	41,513	43,292	47,854	51,231	52,612	52,992	54,195	58,249	63,077
Bangalor . Municipality.	6,470	6,909	7,691	8,804	9,439	9,985	9,839	10,230	10,615	11,182	13,104	14,223	14,889	16,708	18,836	22,091	27,193	31,772	35,147	35,409	39,578	40,095
Kolar	7,199	7,561	3,126	9,923	11,753	11,792	12,389	10,860	11,022	12,279	11,373	11,867	11,803	11,472	12,109	11,734	12,143	15,538	16,419	16,933	18,659	21,064
Tumkur	13,678	13,204	12,956	12,587	12,952	14,268	16,247	18,059	18,152	17,982	15,659	16,586	19,517	20,041	23,847	26,727	27,970	30,174	34,913	35,868	43,378	45,197
Maisur . District .	2,639	2,811	2,372	1,574	950	823	1,618	1,335	1,081	1,280	1,148	1,263	1,305	1,098	1,348	1,661	2,194	2.213	2,286	3,961	2,517	2,368
Maisur . Municipality.	2,256	3,236	2,965	3,002	2,699	3,790	3,630	4,252	4,114	4,743	4,960	4,420	4,014	4,142	4,125	4,510	3,890	3,015	3,006	3,059	2,920	3,082
Hassan	1,997	2,158	2,786	3,350	4,099	4,785	4,701	5,004	5,665	6,180	6,666	6,543	6,560	6,820	7,253	7,240	7,469	7,649	8,058	8,428	9,651	10,501
Kadur	1,352	1,140	1,307	1,122	1,288	1,270	1,247	1,288	1,382	1,501	1,527	1,411	1,384	1,162	1,066	1,033	1,354	1,623	2,351	2,178	2,101	3,178
Shimoga	533	1,134	1,084	1,057	1,072	970	936	1,019	1,118	1,054	909	925	886	863	964	1,045	1,469	2,250	2,182	2,273	2,533	3,058
Chitaldrug	4,005	5,119	6,040	7,605	9,735	9,302	10,718	10,798	13,479	16,450	17,421	18,812	20,175	22,192	24,720	27,541	29,526	27,906	29,821	31,779	34,124	35,447
Total number .	59,444	68,641	82,501	87,691	94,873	102,399	108,482	107,814	108,557	114,676	110,805	116,259	120,251	126,011	137,560	151,436	164,439	174,842	187,175	194,083	213,710	227,067

The numbers on relief-works were—

On the 31st March 1877 . . . . 55,687.
After the 1st April 1877 . . . . 32,000.

The decrease was said to be due—

to the completion of some of the works under Revenue Officers, before the close of the official year, and to the lapsing of sanction at the close of the official year.

There is nothing in the history of the administration of the Maisur famine more discouraging than this collapse of the relief-works :—

The immediate source was a pure oversight. Nobody, in high place, had remembered the existence of this technical rule, nor foreseen its effect; nor sent instructions to the inferior officers in charge of the works, that the rule was not to operate so as to cut off relief from starving people. Why did no one remember the rule? Because it was no one's special business to remember it, or to see that its application was not a cause of disaster. There was no Famine Department—no single administrator of famine relief measures. The Commissioners gave to famine only the time they could spare from their increasingly heavy duties as Sessions Judges. The Deputy Commissioners—burdened with the multiplicity of their cases, bewildered with the intricacy of their accounts, tied hand and foot in the trammels of official routine, relieved of scarcely any of their usual duties, and strengthened only in two or three cases by the appointment of special assistants—found it hard enough to carry out the day's work in the day; harder still to look forward to the needs of a fortnight or a month in advance; impossible, in the absence of personal communication and confidence, to conduct the correspondence necessary to elicit the orders that were needed. If there had been a single officer vested with extraordinary powers, whose sole business it should have been to carry on the relief measures, to see things with his own eyes, to hear the views of the district officers from their own lips, to make a forecast of the future and provide plans for all its wants, this catastrophe would, in all human probability, not have happened.

The direct and positive cause of the failure was the refusal to relax routine, the insistance on obedience to the ordinary system of procedure under conditions wholly inapplicable. If the necessity of obtaining special sanction beforehand to every petty work had been abrogated, if broad principles had been laid down and district officers left to apply them to individual cases according to their discretion, guided by a central driving power which would have insisted on the proper use of that discretion, then the doctrine of personal responsibility could have been enforced, and due punishment might have fallen on the head of those who preferred to close a work on which starving people depended for their existence, rather than carry it on without a notification, a sanction, and an appropriation. Then the amildars, who turned hundreds of applicants for work away, or employed them only on alternate days, for fear their funds might run out, might have been instantly dismissed from the service, after which the crime would not have been repeated. Then the Deputy Commissioner himself might have been suspended for allowing the starving people of Dod Ballapur to be thrown out of work in the end of January 1877. But how could that be done when he had just been severely censured for starting an unsanctioned work to employ those very people?

From relief-works 23,000 people being dismissed, 25,000 fresh admissions were made to the relief-kitchens.

From that time, every effort of the District Officers to relieve the increasing distress by employment on works, was in vain; the famine operations consist of the recording of the numbers gratuitously fed in kitchens.

On the 8th June 1877, the Government of India drew attention to the vast increase of gratuitous feeding, and to the continued lowness of the numbers on relief-works :—

It might be inferred that relief-works were regulated by the work in hand to be done, rather than by the number of persons requiring relief and able to do a full day's work; that no efficient supervision of such petty works could exist; that either multitudes are being improperly and unnecessarily fed, or relief-works have been kept down to so narrow a limit that the people have been reduced to the last stage of distress, and have no alternative but to resort to the kitchens; or, again, that if village relief were efficient, such large bodies of persons would not leave their homes and crowd to centres of relief. In this connection it may be noticed that, in the weekly report of the 21st ultimo, the Commissioner of Ashtagram is said to state that "a large portion of the persons fed at kitchens were half-starved and sickly emigrants from other places."

The Chief Commissioner replied on the 2nd July and on the 2nd August, but his replies gave no information on the subject :—

With regard to the works in progress under the officers of the Public Works Department, until within the last few days no material change has been made in the principle on which they have been carried on in ordinary times. The position maintained by the Chief Engineer has been, that the works are not adapted to those who are not able-bodied, and it has been strongly urged that any deviation from this principle would tend to demoralise the employés of the Department, as no practical system could be devised by which two classes of work could be maintained,—one adapted to the able-bodied, and one to those not.

The following table shows the railway-borne grain to Bangalor :—

Imports to Bangalor.

	Tons.	Total.	Daily average.
Week ending—			
7th April 1877	3,422		
14th „	2,907		
21st „	3,566		
28th „	3,130	13,025	465
5th May	3,825		
12th „	3,614		
19th „	3,661		
26th „	3,442	14,542	519
2nd June	3,587		
9th „	3,650		
16th „	3,353		
23rd „	3,089		
30th „	3,958	17,637	504

Imports to Bangalor,—concluded.

	Tons.	Total.	Daily average.
Week ending—			
7th July	5,541		
14th „	3,698		
21st „	4,061		
28th „	5,851	19,151	684
4th August	3,574		
11th „	3,986		
18th „	5,280		
25th „	3,787		
1st September	5,634	22,261	636

On the 16th July 1877 the Government of India asked what quantity of grain was daily required. The reply was—

The daily requirements till October 1877, 4,000 tons of grain ; to Bangalor, 1,000 tons.

This estimate was excessive. Four thousand tons represent 8,960,000lbs. of food for nine millions.

On the 23rd May 1877, the Chief Commissioner published a set of rules for the management of relief-works and kitchens :—

The relief officer (that is, the officer whose special work it was to inspect villages and to hunt up cases of distress) was to visit every relief-work (perhaps 30 or 40) once in ten days, and to test constantly the measurement of works, to "supervise unceasingly the distribution of cooked and uncooked food," and to see that the kitchens were kept clean. A *mutsaddi* (writer), in charge of each kitchen, was to give an admission-ticket to each person entitled to receive food, to enter him in a nominal register showing the name, sex, age, residence, caste, date of admission, and daily attendance. To the paupers, summoned by a horn blown at noon, food was to be distributed at 2 P.M., the tickets being checked and the register filled in the interval. In the intervals of keeping up this register and of feeding the applicants, the mutsaddi was to look after the sick, to see them doctored and fed twice a day, to keep the paupers to some light work, and to look after the latrines and the cleanliness of the ground. Uncooked food, was to be distributed to very limited numbers, under special circumstances (no instructions given).

Where raw grain has to be issued to persons or families, their necessitous condition should be certified to by the amaldar.

[The persons who generally received raw grain were sleek Brahmins, whom the amaldars certified were in extreme want.]

If the framer of these rules had attempted to record the names of the starving wretches who crowded to the kitchens, often over 1,000 in number, undisciplined, exhausted, suspicious, giving a different name and residence each day, he would have learnt that it was impossible to carry them out.

On the 18th June 1877 the Chief Commissioner approved of a proposal for deporting the famine-stricken people to their own homes :—

Many of these people will, if carefully conducted to the neighbourhood of their own houses, be able to find employment in field-work, or be provided with means of subsistence in their own taluks till occupation be found.

The difficulties met with in carrying out the orders were greater than had been supposed :—

It did not follow, because the paupers declared that they had come from Kolar, that their statement was true : on the contrary, their wish was to conceal their native place. They had left their homes because they found themselves unable to support life there, and either could not obtain, or would not accept, relief on works or in kitchens in their own neighbourhood. Some were influenced by a vague trust in the unknown—a rumour that in other places relief was given more liberally—or by a credulous hope that new chances might offer themselves in a new place, and especially in a great town like Bangalor; others were actuated by a feeling of honourable shame, an unwillingness to be seen as beggars in places where they were known. Whatever the cause, they were loth to return to the countries they had left. Nor did they trust the motives of the officers of Government in attempting to deport them. Their miseries had degraded most of them below the level of reasoning creatures. The pangs of long-endured hunger; the constant dread of a horrible death, kept off day to day, always imminent and near; the anxiety lest in the confused distribution of food they should be excluded or put off with half a ration, or have their food stolen by stronger paupers; the depressing effect of sitting day after day in a row to be fed; the feeling of degradation through beggary and of loneliness in a crowd—all these influences combined to destroy their morale and to render them a prey to the wildest rumours. There was no feeling of gratitude or of allegiance to those feeding them at such expense of labour and money,—only distrust and suspicion,—their hatred of themselves reflecting itself by imagination upon the faces of the officials who dealt with them, and who tried to reduce them to order and discipline.[1] The prevailing belief was that the Government meant to deport them to the Andamans, and the slightest circumstances served to give colour to this delusion.

On one occasion, when the Chief Commissioner drove down to see them fed, followed by his mounted orderlies, the noise of the wheels and clatter of the horses broke suddenly upon them as of such awful import that they rose up in terror, left their meal, rushed to the gate to escape, and crushed to death the weaker ones in their flight. On a later occasion, when the Viceroy visited one of the largest kitchens, the same panic seized them : they did not then attempt to flee, but sat in lines, weeping loudly, tears rolling down their cheeks into their food.

Those who marched to Tumkur were willing to travel along the familiar road. Some robbed a bazar on the way ; some broke loose from the party, but the majority reached Tumkur, and were lost in its enormous kitchen

[1] See page 29.

population.[1] But it was decided to take the Kolar paupers by train, and this unwonted mode of travelling at once revived their fears of transportation. With the greatest difficulty they were got into the train, and then many had to be held down to prevent them from jumping out. In this way, 500 were delivered at Malur and 500 at Kolar Road Station, 20 and 30 miles respectively from Bangalor.

The difficulty was not ended when the paupers reached the point of deportation; the next difficulty was to retain them. The President of the Central Committee had proposed that they should be fed in the kitchens "till work or food could be provided for them elsewhere;" but what if they were able to work, but refused it? The Chief Commissioner had said that they were to be kept at the kitchens "till efficient arrangements could be made for returning them to their villages or taluks;" but what if they objected to go back to their villages, knowing they would surely die there? The Deputy Commissioner of Kolar found himself with 1,000 paupers on his hands, many of whom had said at Bangalor that they belonged to Kolar; now, that they belonged to other districts. They were well able to perform labour, and far above the standard below which work need not be enforced and gratuitous food might be given. He offered them work; they refused, insisting that they had been sent from Bangalor to be fed, and fed they would be. The railway ride, which they had so dreaded, turned their heads; they referred to it as a proof of their importance in the eyes of Government. Many of them left the kitchens, refused the work, and found their way back to Bangalor.

This worried the Kolar officers, who saw that they must either relax the strict rules under which gratuitous relief was confined to those unable to work, or incur the displeasure of the Bangalor authorities. This made them not a little impatient with these refractory paupers.

The Commissioner of the Ashtagram Division gives some useful figures:—

	Numbers fed daily.		Expenditure daily, in rupees.	
	Adults.	Children.	Actual.	Proper.
Week ending 21st April 1877 at Hassan—				
Cost of condiments for ... ... (3 pies each adult; $1\frac{1}{2}$ pies each child)	1,290	1,219	$\frac{46}{7}$	30
Cost of ragi (at 16lbs. per rupee)	...	...	$\frac{689}{7}$	133
Four weeks ending 28th April 1877 in the town of Maisur—				
Cost of condiments ... ... (3 pies each adult; $1\frac{1}{2}$ pies each child)	1,556	1,407	$\frac{55}{4}$	$35\frac{5}{16}$

It is hard to resist the conclusion that the desire for economy impelled the subordinate officers to reduce the relief below that prescribed.

A Deputy Commissioner, asked why it was that he had made the allowance of three pies per head for condiments to cover the cost of the kitchen establishment, replied that the circular of 29th March 1877 did not specify how the cost of establishment was to be met; and as the Central Committee had resolved that the three pies ought to include the wages of cooks, he had assumed that this resolution was approved by Government. Thus, the paupers were deprived of an integral portion of the prescribed food. No wonder that the health and strength of the paupers relieved in the kitchens did not improve.

If there had been a special Famine Office employed in checking and testing these returns, such errors would have been detected and much misery prevented. It was no one's wish that a petty saving should be effected at the expense of the people's lives; but to check errors in detail, the investigating of details is required.

The Public Works circular of 11th January 1877 stated that their duty was only to deal with able-bodied coolies according to the regular system, and that it was impossible for them to work two systems of tasking and two methods of payment side by side, but that all persons reduced below the normal strength or unaccustomed to labour at earthwork should be employed by the civil officers; and the Chief Commissioner's orders of February 28th and March 23rd 1877 supported it, while, in his orders dated 9th February and 1st May (inferentially) and in that of 9th July 1877 (clearly), he intimated that the public works should be utilised as relief-works. It seems never to have been understood by the civil officers that it was of no use to send famine coolies either unable or unwilling to do a full task to the works under professional supervision. We find the civil officers busily employed in sending to the water-works all coolies "fit for light labour;" and the Public Works Department officers equally busy in sending away all only fit for light labour.

It is enough to fill one with despair to read the record of mutual misunderstanding and want of co-operation. The Chief Commissioner issues his orders about village inspection and relief officers. The relief officers send hundreds of miserable paupers to this relief work—a work admirably suited to them. The officers in charge receive them on the rigid departmental system of piece-work, by which an able-bodied coolie, accustomed to earth-work, could earn a decent maintenance. The poor wretches try their best for a day or two, and then give it up in despair, and wander away to die. The mere recital of such a thing should have caused a movement of indignation strong enough to burst the shackles of red tape which bound the Department. In this case, the Commissioner and the Executive Engineer managed to arrive at a *modus vivendi*; and though there was no relaxation in the rules about excavation rates, light miscellaneous work was provided for a certain number of famine coolies, after the 11th. At head-quarters the tendency was to disbelieve the reports of the local officers. The Chief Engineer's note on this correspondence was to the effect that the evidence of impartial observers, such as Major Chrystie, and Captains Bowen, McCullagh, and Strahan, showed that the visible numbers of the physically weak were not great, and would have been still less if they could have been induced to go to work earlier.

On the 23rd March 1877, the Chief Commissioner laid down the following rules regarding civil relief-works:—

"The Deputy Commissioner of a district should have in readiness a list of the works suitable for each taluk, with their estimated cost, and should submit it to the Commissioner, in view to his allotting the amount.

[1] On his first visit to Tumkur, Mr. Elliott singled out a stout, comfortable-looking man, in the relief camp, and said that he ought not to have been admitted. He was one of this party deported from Bangalor. Though the Tumkur authorities allowed that he was a most unsuitable inmate, they were obliged to keep him there, for fear he should, if not fed, make his way back to Bangalor and put them to shame.

"The Deputy Commissioner should apprise each amaldar that works approved are to be begun only upon due sanction, and that he should apply for sanction early, to avoid the cessation of employment of the indigent.

"The Deputy Commissioner will determine whether it is necessary for him to sanction any fresh work (included in his approved list), or to supply more funds for those in progress. In the former case, the Deputy Commissioner (having previously obtained general sanction from the Commissioner for his list of selected works, and an allotment for the amount) will issue the notification of sanction to the amaldar, submitting at the same time two copies thereof to the Commissioner—one for record in his office, and the other to transmit with the application for funds to the Chief Commissioner.

"The Commissioner of the Division, having a sum at his disposal, will be responsible that allotments are made sufficiently early to meet the demands of the Deputy Commissioner, who must take care that his programme of works is submitted in time to enable the Commissioner to examine each item and to submit the application to the Chief Commissioner for the grant, with his recommendation, as prescribed in Chief Commissioner's Proceedings No. 444, dated 9th March 1877.

"Mr. Saunders desires to impress the need of submitting considered projects, with digested information on each proposition, accompanied by estimates, to enable him to pass orders."

The system approximates to that in force, and, if it had been existing before, and if each Deputy Commissioner had had a list of approved works waiting for an allotment of funds, the extension of relief-works would have been facilitated. The matter was made worse by a misunderstanding. A letter from a Deputy Commissioner, dated the 4th May 1877, shews that his reading of the circular was, that he had to send an account of a project, explaining its nature, and that this the Commissioner must approve; and that then he could submit an estimate shewing all technical details. Though this lengthy routine is not laid down in the circular, it is that which was intended to be pursued, and was pursued with the approval of the officers at the head-quarters. When there were 300 or 400 petty relief-works in a district, the call for such details prior to sanction was as unnecessary as the preparation of them was impracticable.

The manner in which the system worked is described in the account of the Maisur Famine, pages 99 to 102, by Mr. C. A. Elliott, C.S.I., Bengal Civil Service.

The Chief Commissioner requested the Chief Engineer "to make such arrangements as to ensure that able-bodied, but really needy, people are employed on the work" of constructing the Slow and Dharmanbadi tanks in Bangalor.

The Chief Engineer, in his note of the 1st June 1877, replied:—

"I have requested Mr. Hudson not to send the kitchen-people to the railway road any more, they being very much in the way, more plague than profit, and the quantity of work they turned out being altogether inappreciable. From the 'Arab Lines' kitchen, 190 men, 220 women, and 410 children were sent during the last six days. The work they did amounted to 60 cubic yards, value Rs. 5-3-3, or a little more than 1 pie a piece. I have not the number sent from the 'Cleveland Town' kitchen, but during the three or four days they worked they earned Rs. 2-10-11. I remained on the work yesterday till 10-30 o'clock, in order personally to supervise the experiment of working them along with the prisoners; but I was obliged to give it up. Under the above circumstances, it appears to me altogether useless to send the people so far from the kitchens. I had no means of compelling the people to work properly, though many of them were well able to do so, and they gave much trouble and were very much in the way."

On the 21st July 1877, Colonel Sankey, Chief Engineer, issued a circular. Executive Engineers were authorised to reduce the tasks by 25 per cent. in "special cases," where the physique of the coolies had been so lowered that they could not perform the tasks. A labourer doing a fair day's work should receive such pay that he might be able to earn two-thirds of a seer of rice, with an extra allowance for condiments, salt, pepper, vegetables, firewood, &c.

Where daily payments were considered essential, arrangements should be made for the purpose of giving an advance to the headman of the gang.

But the conditions under which daily payments were essential were not stated, and the rule of introducing them on all works on which famine labour was employed was not made absolute. The circular was accompanied with a table shewing what the cost of ⅔ of a sīr of rice or ⅔ of a sīr of ragi would be, according as rice or ragi cost from 6 to 3 sīrs per rupee: the addition for "condiments" was to be 6 pies when the price of grain was from 5 to 6 sīrs, rising gradually to 9 pies when it was 3 sīrs: women were to get ¾ of the total wage thus calculated, and children under 12 years old one-half. A similar sliding scale was introduced on the 8th August on the civil relief-works: men were to get the value of ⅔ of a sir of rice, *plus* three pies for condiments: women and children, ¾ and ½ of the wage respectively. But these orders did not explain how this principle of daily wage could be reconciled with that of payment by piece-work.

On the 6th August 1877, Mr. Gatherer, Executive Engineer, Maisur, made two proposals:—

(*a*.) That he might receive permission to give to the parents who had children to support, a fixed allowance for their food.

(*b*.) To pay on the daily wage system those who could not do even ½ of an ordinary task.

The Superintending Engineer said:—

"As to the first proposal, the work would be difficult,—owing to the large number of works on hand and the want of officers to inspect them: it would be impossible to find out what parents really had children belonging to them, unless they brought them to the work, which is undesirable for the children's own sake. As to the second proposal,—it was impossible to employ two classes of men doing the same kind of work but receiving pay on different systems: all would prefer to go on the daily pay system and to do no more work than they liked. The only way to employ the weak without demoralising the strong was to employ them on separate works, from which all able-bodied labourers should be excluded. These works should be under Revenue officers, although, if necessary, they could be supervised by Public Works Department officers as relief-works. He concluded by censuring Mr. Gatherer's letter as vague, unsatisfactory, crude, and undigested, dealing with probabilities, not with facts, and shewing the absence of consultation with the Revenue officers as to the best method of providing for the incapables. The Chief Engineer concurred, and said that if they were compelled by the Chief Commissioner to adopt task-work instead of piece-work, they must, to secure return to Government, con-

centrate their efforts on such large works as would admit of their having always a trustworthy subordinate at hand to force the people to labour; and this would necessitate cutting down most of the small works, and would cripple the scheme of tank restoration. The Chief Commissioner agreed that Mr. Gatherer's proposals were vague and impracticable: enough had been done to meet the necessities of the case by reducing the task to 75 per cent., and prescribing a sliding scale of pay."

Thus the most humane proposal made by any officer in the Public Works Department was treated with scant courtesy, and his views as to the needs of the labourers and the growing deterioration of their physique were rejected by his superiors, who had hardly gone into the province to test the facts which they were so ready to disbelieve. Mr. Gatherer had, however, before many weeks passed, the satisfaction of finding that all his proposals were adopted, and it was seen (proved already by the experience of Bombay) that it was practicable to work gangs of labourers side by side, tasking them and paying them on different systems according to their different degrees of strength.

In July 1877 it became obvious that the administration of the famine was not successful. Messrs. Hudson (Deputy Accountant-General) and B. Krishnaiengar, C.S.I. (Deputy Commissioner of Kolar), made an effort to bring matters back into a better groove. They represented their views to the Chief Commissioner in written memoranda, dated the 23rd July 1877.

Mr. Hudson drew attention to the financial position of the province. The surplus fund, which formerly justified the enlarged scale of the Public Works budget, had melted away. The year 1876-77 had ended with a deficit of forty-two lakhs, of which sixteen lakhs had to be paid by selling out invested funds, thus reduced from Rs. 63,04,400 to Rs. 47,14,000. Since 1st April, eighteen lakhs of rupees had been sold, and the remaining Rs. 29,14,000 would have to meet the expenditure of the next few months; they would probably have to apply for a loan of twenty lakhs in November. Even the curtailed Public Works budget, brought down to Rs. 22,15,000, was seven lakhs higher than the old figure at which the allotment made yearly to the department used to stand:—

"The remedy is, to place relief works under the supervision of the Public Works Department, not independently of the civil authorities, but in concert with them. The Public Works staff has been too occupied with departmental work, to give attention to "relief works under civil officers," and my proposal is, after eliminating from the Public Works budget every work that can be postponed without immediate inconvenience, to set free every Public Works officer who can be spared, for the superintendence of relief works. Where a work entered in the Public Works budget of either branch is of a character suited to the enfeebled population, it seems advisable to retain it, even at an enhanced cost; but we must not lose sight of the immediate need of such works as can give employment to that class of labourers. Probably the ordinary Public Works grant of fifteen lakhs will provide for the able-bodied. One duty of the Public Works officer will be to send the able-bodied labourer to the nearest "public work," and to restrict the relief to such as are below par. The rigid rules of the Department Public Works, enforced at the commencement, have had a salutary effect in controlling the wasteful system of daily wages without task on relief works; and a central authority, such as the Chief Engineer's, is obviously preferable to any other operating through the officers of his department—it will bring system into our relief operations; the civil officers should be guided by the orders of the Chief Engineer. Should there be a difference of opinion as to rates, the point may be referred for the Chief Commissioner's decision.

"In the selection of works, the Chief Engineer's advice would be valuable. The Chief Engineer could propose a programme of useful works acceptable to civil officers. Money would not be frittered away, as at present, and the Government would get some tangible return for its heavy outlay."

Mr. B. Krishnaiengar, in his memorandum,

"urged that, whereas a larger sum of money was being spent on the relief kitchens than on works, the reverse ought to be the case: the kitchens did but demoralise the people, as only the vagrants and professional mendicants resorted to them, and their numbers ought to be diminished, so as to impose some restriction on the distribution of relief in this form. The number of relief works, on the other hand, should be increased and placed under the officers of the Public Works Department, so as to leave the district officers free to superintend other branches of Famine work, to look after the kitchens, prevent frauds, &c. These relief works need not interfere with the execution of the ordinary budget works, which could be carried on by the same officers in the areas of taluks under them."

Colonel Sankey replied, on the 7th August 1877,—"Mr. Krishnaiengar considers that Maisur requires eighty-five lakhs spent on works" (Mr. Krishnaiengar said that for his own district he wished to spend Rs. 50,000 a month on relief works), "while Mr. Hudson maintains that unless immediate curtailment of all outlay be decided on, ruin stares us in the face."

If your civil establishment of amaldars and peshkars, sarishtadars and shaikhdars, shanbhogs and patels, are unable to manage those works, what can our "very small" contingent do? If their morale be so bad, our subordinates will be unable to infuse "their higher morale into the class complained of," and "will hardly escape contamination." The contention of the civil officers was, that they were so burdened with the duties of relief that they wished to make over the relief works to the professional officers, to have more time to attend to other branches.

He stigmatised the undertaking of repairs of tanks as—

"dangerous in itself and subversive of the whole principle on which the present great work of tank restoration is being carried on," and "a return to the old utterly illogical and destructive method followed under previous native Governments." "The time required for framing the projects on reliable data must in itself be fatal to the idea of treating such as famine relief works for immediate execution." The proposal is radically unsound for:

(1) To pronounce a work useful, it should be thoroughly investigated. We have no time for this, and anything commenced without complete data and enquiry must lead to useless squandering of money.

(2) To spend valuable time in getting up a programme of such useless work when we have already a completely thought-out and sanctioned scheme for public works, most of which is admirably suited for relief works would be idle.

Having proved that the execution of repairs to tanks, as proposed by Mr. Krishnaiengar, was impracticable, he said:—

"There is one point as to which no one can make a mistake, and that is, placing earth on the top and at the back of an embankment. Weak embankments are the rule in Maisur, and many breaches occur yearly, due to their insufficient height. About 16,700 tanks require repairs of this nature, averaging about Rs. 150 each, or twenty-five lakhs in all. These repairs should be carried out by civil officers, whose duty it is to take care of the feeble; not by the Public Works Department providing for those able and willing to work."

He quoted as his authorities the orders of 1873, "the Code rules, the lately published opinion of His Grace the Duke of Buckingham, and the various orders of Mr. Saunders." No reference was made to the fact that the opposite policy had been pursued in Bombay with the approval of the Government of India, nor any attempt to prove that measures successful in the famine in Bombay were inapplicable to Maisur.

The Chief Engineer's own proposal was—

"that the operation of the Public Works Department should be extended. He could employ 1,000 people on the repair of roads in the country, 5,000 on buildings, 7,000 or 8,000 on the water-supply works, 28,000 on irrigation works planned; and some on the 3-mile extension of the railway to the town of Bangalor, and on the 9 miles between Maisur and Seringapatam. He could employ from 40,000 to 50,000 able-bodied labourers, if only the civil officers would co-operate and drive them to the works. Some form of compulsory law was necessary, and "there should be no shrinking from using the requisite pressure in regard to this duty." He ended by repeating a proposal to spend a gradually-increasing sum rising to seven lakhs of rupees a month on public works, shewing that the country could easily bear such a debt, and that, while the task of repaying it would be light, the benefit of pouring money into the country at such a time as this would be very great."

The discussion ended on the 17th August 1877 by the issue of a memorandum from the Secretary to the effect that, though financially desirable, it was not practicable to cut down the budget to fifteen lakhs. The Chief Commissioner had requested the Government of India to let the budget stand, even though the expenditure must be carried on by loans; but three lakhs must be postponed and held in abeyance.

In August 1877—

The number fed daily in the kitchens was	227,000
Number on civil relief-works	29,000
„ relief-works under the Department Public Works	24,000

Death-rate in the hospitals was 200 per cent. per mensem.

	Rs.
The cost of the kitchen	5,50,000
„ civil relief-works	1,25,000
„ relief-works under Department Public Works	2,25,000

On the 6th September 1877, the Viceroy arrived at Bangalor, and remained three days.

An essential feature in reform was obviously the closing of the small civil works, and the opening of large works, to be supervised by the officers of the Public Works Department. The numbers on the 1st September 1877 in the districts most affected were—

	Kitchens.	Civil Works.
Bangalor	103,172	10,268
Kolar	21,064	4,571
Tumkur	45,197	4,849
Chitaldrug	35,447	5,029
Total numbers	204,880	24,717

These views were explained to Colonel Sankey by His Excellency the Viceroy, who invited him to prepare a scheme for giving the required employment. His programme, produced on the 7th September, was composed of projects in those Malnad and semi-Malnad tracts into which (even if the principle of moving thousands of labourers over more than a hundred miles had been accepted) it would have been impossible to march labourers in the unhealthy season of the year, and into the valley of the Cauvery and its affluents, where no distress prevailed. Out of twelve irrigation projects, estimated to cost Rs. 6,30,000, six projects, estimated to cost Rs. 4,29,000, were thus situated and unsuitable as relief works. Out of twenty-eight road projects, costing Rs. 12,68,000, twelve (costing Rs. 7,30,000) were altogether in the Malnad; ten (costing Rs. 4,13,000) were in the semi-Malnad tracts in the south of the Maisur District, where no distress prevailed; two were bridges;—only four, costing Rs. 96,000, were of a character suitable for relief, and situated in tracts where pauper labour had to be employed. Weeding these, there remained the following:—

	Estimated cost. Rs.	Estimated number of labourers to be employed.
Bangalor—Agrara Tank	34,000	5,000
Bhadram Tank	18,589	3,000
Hoskota Tank and series	27,650	5,000
Metalling three roads	73,307	5,000
Kolar—Extension of tank operations and road repairs	50,000	7,000 2,000
Tumkur—Metalling roads	48,610	5,000
Chitaldrug—Timanhalli Tank	48,300	6,000
Other irrigation works and road repairs	...	3,000

There was the railway embankment, the carrying on of which had not been sanctioned, except the three-mile extension to the town of Bangalor, which might occupy 5,000 people.

The scheme provided employment for 46,000 people, or one-third of the number which required employment.

In his despatch of 20th September 1877, His Excellency the Viceroy says :—

"6. His Chief Engineer, however, had objected to the employment of the Public Works establishment otherwise than on the ordinary contract system, and had omitted to provide any special works for relief purposes. Even on the brief extension of the Bangalor Railway, sanctioned by the Government of India, the Department had declined to employ more than 300 out of the thousands ready to labour, and whom the civil officers were anxious to draft from gratuitous relief to works.

"7. Colonel Sankey is an officer of much experience in Maisur, and has the reputation of being a very able engineer. He has under him an unusually strong departmental staff in proportion to the size of the province; and I had hoped that he would prove a valuable assistant in carrying out my policy of making large relief works under departmental supervision the back-bone of the whole relief system. I accordingly explained my views to him at some length, first in a private interview, and afterwards at the conference which I held with the Chief Commissioner and other officers.

"8. To my regret, Colonel Sankey persisted in objecting to the employment of his departmental organization for the supervision of real relief works. He brought forward a scheme of works which were, he said, ready to be put in hand; but these, when examined, proved insufficient to give employment to more than one-half the requisite number; and even for this instalment Colonel Sankey repeated his unwillingness to employ any of his regular staff, or to divert them from the ordinary sanctioned works.

"9. It thus became clear to me that to entrust Colonel Sankey with the execution of our famine policy was to ensure its failure. It will, in any circumstances, be a matter of great difficulty to withdraw people from the loose, undisciplined, idle life of relief kitchens (where they are fed gratuitously, and, having got their meal, may employ the rest of their time as they please) to the enforced tasks and discipline of supervised public works; and I felt that I could not rely upon the exertions of Colonel Sankey for the successful prosecution of a policy which he seemed unable to accept in principle and unwilling to adopt in practice. I therefore took advantage of a wish expressed by Sir Andrew Clarke for the temporary assistance of a Deputy Secretary during the pressure caused by famine work in the Central Office of the Department Public Works, and Colonel Sankey has been appointed to this duty. I have transferred Major Scott Moncrieff, R.E., to the temporary Chief Engineership of the province."

Lord Lytton, in his letter, dated 8th September 1877, to the Chief Commissioner, says :—

"2. His Excellency deems it unnecessary to criticise the action of the past; but he finds from recent returns[1] that the numbers now on gratuitous relief are 213,710; that there are on works managed departmentally, 22,975; and on works managed by civil agency, 25,644. It appears doubtful if any considerable proportion of the people employed on departmental works can be considered as 'relief labourers,' and the works under civil agency are petty works, little suitable to famine operations, and specially difficult of supervision.

"3. It is also manifest that, owing to the want of sufficient relief works, the relief camps or kitchens have become crowded to an extent incompatible, under existing organization, with proper discipline or control; that vast numbers are relieved at those places who are quite capable of working; that in some of them no nominal register is kept; that different scales of rations are in force in different kitchens, rendering the maintenance of the more economical standard a task of difficulty; and that altogether there is a serious want of organised control.

"4. The principles on which famine relief should be administered are laid down with sufficient distinctness in the Minute of His Excellency the Viceroy, dated the 12th August 1877; and Lord Lytton gladly acknowledges that the orders issued by you from time to time have been generally in accordance with these principles.

"5. The Viceroy desires that the attention of your Administration should be directed to the maintenance of a scheme of large works of public utility for the relief of the destitute population. The works should be managed *as relief-works* on the task-work system, on relief wages, and under stringent tests such as those in force in the Bombay Presidency; and to these works all persons capable of labour shouldbe drafted, both from relief camps and, hereafter, from petty works under civil agency. Petty works under civil agency should also be brought under the general supervision and control of the Public Works Department. The above-mentioned scheme must be the back-bone of the relief system, all other forms of relief being subsidiary to it. The entire energy and strength of your Public Works Department, unhampered by the rules and restrictions which ordinarily regulate its employment of labour and expenditure of money, must be devoted to the object thus defined. This must be done at the expense, if necessary, of other works sanctioned in the annual budget, but not suitable for relief works. It is not absolutely essential that such works should be remunerative, nor even that they should be such as can be finished during the continuance of the famine; but preference should of course be given, where possible, to works coming under these two categories.

"6. The Viceroy is not unaware that, in carrying out this duty, alien as it is to the every-day work of the Department of Public Works, much disturbance of the machinery must take place, involving some deterioration in the discipline of the regular coolies on the establishment and in the efficiency of the departmental staff. But in times of famine all ordinary administration must give way to the one main object.

"8. Lord Lytton, in order to obviate any failure of the policy, desires you to forego your budget scheme of Public Works during the present crisis. Those of the sanctioned works adapted for relief purposes should be carried on as relief-works, and those not so adapted closed—the departmental establishment being transferred to *relief-works*.

"9. All gratuitous relief should be understood to be a temporary concession, subsidiary to the main object of getting people when in condition to labour on the relief-works, or back to their ordinary avocations. At relief kitchens (unenclosed feeding-places) it is certain that neither can proper tests be applied, nor can efficient discipline be maintained; it should be an object, therefore, to confine the gratuitous distribution of food to properly-enclosed relief camps, where the people may be kept under strict discipline and properly registered, and set to such light labour as they may be able to do. The ultimate object of these camps, as receiving places only for people hereafter to be drafted to works or to their ordinary occupations, should ever be kept in view.

"All relief camps, whether in Bangalor or elsewhere, kept up by Government money should be placed under Government organisation, so that one system of control and one scale of rations may be applied to all.

"The Viceroy learns that the people in relief kitchens have, through long idleness, become so demoralised that there will be much difficulty in keeping them on works. It will be necessary for your civil subordinates to give the assistance of the police to maintain discipline in the camps attached to the works, to prevent aimless wandering, and to see that people do not leave the works without security for their being able to support themselves.

"10. Village relief is not given in Maisur. Should it become necessary to give village relief, it should be confined to resident villagers who are houseridden or otherwise unfitted for labour, and should on no account be given in the shape of cash.

"11. In order to assist you in the ardous task of introducing these changes and of supervising the famine administration of Maisur, the Government of India have been pleased to place at your disposal, as Famine Commissioner, Mr. C. A. Elliott, C.S., with Mr. Wingate, of the Bombay Civil Service, as your Additional Secretary in the Famine Department.

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[1] The week ending 25th August—the latest then available.

Major Moncrieff, Mr. Wingate, and Mr. Elliott took charge of the offices respectively of Chief Engineer, the Famine Secretary, and the Famine Commissioner, on the 10th September 1877.

It was agreed that 1lb. of ragi flour, with "condiments" (pulse-soup with vegetables, salt, and pepper), was sufficient to sustain an adult non-worker, and half as much for a child under 12 years; that for a working man the amount fixed by the circulars of July 21st and August 8th 1877 (1½lb. of flour) should be accepted; and that it was advisable to give a larger wage on relief-works under Public Works Department Officers than on those under Civil Officers. The scale of wages was—

	Both classes of works.	ON RELIEF-WORKS.	
		PUBLIC WORKS DEPARTMENT. (A wage.)	CIVIL DEPARTMENT. (B wage.)
Adult male	Value of 1½ lbs of flour	*plus* 9 pie in cash	*plus* 3 pie in cash.
„ female	„ 1 lb „	„ 9 „	„ 3 „
Working child	„ ½ lb „	„ 6 „	„ 2 „
Non-working child under 7 years	„ ¼ lb or 4 pies.		

In this way, a man or a woman got half an anna a day more on the professional than on the non-professional works; and the extra wage was intended to enable them to buy condiments and firewood, and to lay by a small sum daily for their support on Sundays, when the works were closed.

The following table gives details :—

In August and September 1877, in the vicinity of the town of Bangalor :—	Average daily number fed.	DEATHS.†	
		Average per diem.	Per 1,000 per diem.
Benni Mangala, Sillidar Lines } Relief-Camps	6,750	49	7·3
Pettah, Cleveland } Kitchens	11,000	32	3·0
Dead bodies in the streets of Bangalor	...	56	...

The following figures are given :—

	Average number fed gratuitously.	Probable deaths, at 5 per mille per diem.*
In July 1877	145,000	22,475
„ August „	199,000	30,907
„ September „	179,000	26,850
TOTAL MORTALITY	523,000	80,232

The villagers used to say :—" He went to the kitchen and died."

Before the Viceroy left Bangalor, thirty-four native doctors began to arrive from Upper India.

On the 10th September 1877, orders were issued for the closing of kitchens and converting them into relief-camps.

	NUMBER OF	
	Relief camps to be maintained.	Kitchens to be closed.
Bangalor	20	9
Kolar	12	10
Tumkur	16	4
Maisur	11	12
Hassan	14	19
Chitaldrug	13	22

On the 14th September 1877 orders were issued for the bringing of civil relief-works (1,746 in number) under the control of the Public Works Department.

The task was to be 50 per cent. of the work of an able labourer in the Department Public Works.

* A daily death-rate of five per mille during July, August, and September 1877 is no exaggeration.

† In August and September 1877, from all causes, out of 11,000 daily fed, 66 died per diem, or 6 per mille per diem.

On the 26th September 1877[1] orders were issued to the President of the Municipality, regarding relief to all residents in the municipality of Bangalor.

"2. Under the orders of the Government of India, all open kitchens, at which paupers receive food, which they can take away uneaten, or which they can eat and depart, must be abolished. The Pettah kitchen should therefore be closed, and arrangements made for the people hitherto fed there.

"3. Those people consist of two classes: First, paupers who have crowded from the villages and other districts. Of these, the able-bodied will be removed to relief works, and the infirm and sick alone retained in the hospitals and in the Sillidar Lines. Secondly, the townspeople; these are—(1) sick; (2) able-bodied and accustomed to labour; (3) able-bodied but unaccustomed to manual labour and earth-work, only to some trade such as weaving, tailoring, working in leather, &c.; (4) infirm and unable through old age or bodily weakness to earn their bread. The two former classes will be provided for at the hospitals and on the relief works; the two latter should be cared for by the Municipal Committee in the following manner.

"4. The town and cantonment should be divided into portions, the size regulated by the number of houses inhabited by members of the two classes referred to; there should not be more than 100 of such houses in each beat put under the charge of a gentleman who will undertake to perform the duty, and who will be called the Inspector of the beat. His duty is to make a house-to-house visitation of his beat, to ascertain what persons in the beat are either infirm (class 4) or fit for other than manual labour (class 3), and to prepare a register of them. He will give to each person too infirm to labour, and yet not fit for hospital, a ticket with a number (corresponding to his register), entitling that person to receive 1lb. of rice a day from a grain-merchant, fixed on by the Inspector of the beat with your concurrence. He should make out a separate register of such grain recipients in the form annexed, and revise it every week; should give an order every Monday on the grain-merchant, shewing how many pounds of rice he is entitled to supply every day. The distribution of rice to ticket-holders should take place at a fixed time every morning. Either the Inspector or some municipal officer should be present to see that there is no fraud, and that infirm persons receive their dole.

"5. The Inspectors of beats will visit their beats weekly; the tickets for grain must be renewed every week by them, or the grain-merchant will not be authorised to serve out the grain to the ticket-holders.

"6. To those who belong to some trade and are unable through poverty to carry on their trade, the means of doing so should be given; cotton should be supplied for women to spin, yarn or wool for weavers to weave, leather for shoemakers, and so on, exacting from each of them at the end of the week the return of a due quantity of the manufactured article, which Government will buy at a remunerative price. This, a technical and difficult task, should be performed by a special official to be called the distributor of work; one such official will probably be sufficient for the pettah and one for the cantonment."

* * * * * *

On the 19th September 1877, the Viceroy returned through Maisur to Bangalor.

The planters for the Wynad or Coorg asked that relief measures might be adopted in those territories in behalf of the Maisur wanderers. From the revenues of Maisur, His Excellency sanctioned a sum of Rs. 30,000 for the Wynad; and offered Rs. 50,000 for Coorg. The sum actually spent in Coorg was Rs. 6,905: seven camps were opened, of which five were closed on the 15th January 1878, the sixth on the 20th April.

From the 19th to 30th September 1877 Mr. Elliott was mainly occupied in drawing up the Famine Code published with the Chief Commissioner's approval on the 2nd October 1877.

In October 1877, Mr. C. A. Elliott, C.S.I., Bengal Civil Service, began his tour, which lasted nearly two months.

[1] See page 101.

In the Province of Maisur.	Period ending 1877.																				
	Gratuitous Relief (Kitchens and Camps).						Civil Relief Works.					Public Works Department Relief Works.					Rainfall, in inches.				
	1st Sept.	8th Sept.	15th Sept.	22nd Sept.	29th Sept.	6th Oct.	8th Sept.	15th Sept.	22nd Sept.	29th Sept.	6th Oct.	8th Sept.	15th Sept.	22nd Sept.	29th Sept.	6th Oct.	8th Sept.	15th Sept.	22nd Sept.	29th Sept.	6th Oct.
Bangalor District . .	63,077	63,025	61,873	45,795	20,256	18,761	6,333	6,390	6,626	8,150	6,778	4,796	5,054	7,442	10,172	16,137	4·23	1·62	2·6	2·58	·73
„ Municipality .	40,095	34,473	26,467	15,342	15,395	14,617	932	877	114	...	...	...	...	...	...	..	...	...	...	...	...
Kolar	21,064	19,664	17,865	8,698	6,391	4,682	4,260	4,738	5,306	4,876	6,103	3,420	3,249	2,683	2,535	2,777	2·35	·85	3·1	2·78	·05
Tumkur	40,197	48,355	46,848	41,297	36,310	27,780	7,894	8,444	10,390	9,324	8,060	1,559	1,911	1,885	875	3,023	5·56	·68	1·5	3·	·54
Maisur District . . .	2,368	2,601	2,381	2,575	2,638	2,401	808	777	905	2,671	1,221	5,435	5,166	4,614	4,886	4,964	·58	1·20	1·8	3·44	3·20
„ Municipality . .	3,082	1,292	680	707	710	687	59	...	50	55	197	...	...	...	...	...	...	...	...	...	...
Hassan	10,501	11,951	12,398	12,147	11,165	8,485	1,406	961	1,881	1,418	1,571	2,878	2,382	2,185	1,667	1,246	1·34	...	·2	3·53	1·57
Kadur	3,178	2,740	3,033	2,828	2,682	2,192	556	630	219	382	677	1,727	1,959	1,859	1,804	1,817	1·54	·21	1·7	3·10	1·37
Shimoga	3,058	3,739	4,204	3,984	3,075	2,619	1,347	1,272	1,184	572	605	1,596	1,615	1,662	1,663	1,837	2·36	·24	·2	2·25	·49
Chitaldrug . . .	35,447	33,336	32,934	28,519	27,682	21,526	5,159	4,714	4,605	3,590	1,797	3,436	3,606	3,441	4,053	3,696	3·55	..	2·2	2·15	1·27
Total number .	227,067	221,176	206,683	161,892	126,204	103,750	28,754	28,803	31,280	31,038	27,009	24,847	24,942	25,271	27,655	35,497	...	...	...	...	...

In the case of relief works under natives of the country, there is no reason for stopping work on Sundays: neither supervisors nor labourers have acquired any need of a rest for one day in seven, though it is a convenience to the supervisor to have a day in which to make up his accounts. In Maisur (save the most famine-stricken), most of the labourers preferred to go on the market-day to the nearest town, to lay in their stores. There is no reason for giving them payment on that day. But there are always some worse off, who cannot afford this relaxation, and in their case to refuse employment on that day would be a great hardship: while, to keep the work open for the sake of a few people would disorganise the arrangements made for measuring the tasks of whole gangs, and is thought hard by the overseers, &c. It was decided to give half a day's wage on account of the weekly holiday to all who had attended and worked for six days. When the work is under an English supervisor, the difficulty is greater. No one can plead that on religious grounds he objects to doing such work as that of famine relief; but the loss of the weekly holiday enjoyed at other times would be felt; and to one who throws zeal into his work, the labour of the six days is so exhausting that only the strongest can dispense with the rest. There are two alternative methods:—they can be paid an extra day's or half day's wage on Saturday; or their daily wage can be fixed on the assumption that they will save a portion out of it and provide the seventh day's food. There are objections to either course. The extra wage on Saturday attracts an influx of people, who do not return on the Monday; and even if the extra payment is refused to those who have not been six days at work, confusion is caused, and, the larger the number of people at work, the harder it is to ensure accuracy. In the other case, they are often too improvident to save for the Sunday. One officer reported that when he started this system, the people had nothing to eat on Sundays, and were so weak with hunger on Mondays that he was obliged to pay them and let them go at noon. On the State Railway this difficulty was felt to the last: the closing of the work on Sunday had a demoralising effect on the labourers, so that to give Sunday pay was to shew favour to the bad workers, not needed by the good. The conclusion was to leave matters as they were, giving for six days, liberal pay, to cover the food of seven.

The sír in use in Maisur is a measure of capacity, not of weight,[1] and the weight varies with the kind of grain. Though the Government order was that a certain weight of flour should be given for each ration, in most places the grain was measured by the sír, and many relief camps had no weights and scales. The weight of a sír-measure of different kinds of rice varied, and that of rice differed from that of ragi. In some places was given rice measured out in pannikins—a method open to fraud; in some, ragi-flour boiled into a pudding and made into balls, the weight of the contents being untested; in some, the pudding measured in a mould; in some, rice mixed with ragi; in the north of Chitaldrug, jowar flour, instead of ragi. The weight and capacity of the cooked food varied according to the quantity of water with which it was boiled: 1 lb of rice boiled in as much water as it could absorb would be wet and sticky, and would weigh over 4 lbs; boiled in double its weight of water, it would weigh 3 lbs, and be dry. It loses weight by cooling. On the 17th October 1877 attention was drawn to the difficulty. Replies were received, on which, and on experiments, was founded a standard scale of the weight of the cooked ration, laid down in a circular issued on the 28th November 1877.

The rice commonly sold in the market was imported from Madras, known as "boiled," or rice scalded to facilitate husking. The dry rice (rice husked without wetting) was dearer and less common. The former weighs 88 rupees, and the latter 90, to the sír (40 rupees equal 1 lb in weight). The rice was dirty, and had to be sifted; from 3 to 5 per cent. was lost in sifting. Ragi weighs 80 rupees, or 2 lbs to the sír, when uncleaned, but contains much dirt and husk. The dirt is separated by sifting: the husk may be pounded off with the pestle, like rice, or ground up with the grain, and the coarser parts separated by a fine seive: if this is not done, the food is gritty and aggravates the bowel-complaints from which the people were suffering: this can only be discovered by the taste, and it is essential that every officer in charge of a relief camp where ragi is given should constantly taste the cooked food. The loss by sifting in ragi never amounts to less than 10, and often rose to 20 per cent. where a trader thought that the goods he supplied would not be closely examined.[2] The routine, in every camp, should be: The stock-keeper receives his rice or ragi in bags, weighs them, and enters them in the stock register, gives them out for sifting or grinding, and receives back the clean rice or the sifted ragi flour, re-weighs them, and writes off the loss to Government. Unless this is done, the loss has to be borne by the paupers; a bag of ragi weighing 100 sirs was made to provide 200 rations, whereas if it was dirty it would only furnish 160 rations: each pauper, therefore, was defrauded of 20 per cent. of the "bare subsistence" ration.

Ragi, the natural food of the people, containing much nutritive qualities, was prescribed as the ration where it could be procured; and by December it had completely ousted rice from the relief camps. In hospitals and to convalescent gangs it was necessary to give either both meals or one meal of rice. The average weight of 1 lb. (or 40 rupees) of ragi flour when boiled in so much water as to make up easily into a ball without being too wet, was found to be 106 rupees, so that the ball given to an adult for each meal in the day ought to weigh

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[1] Where used for a measure of weight, as in the case of things not easily measured, it denotes 24 tolas or rupees in weight, not 80, as in Upper India.

[2] It was known that ragi was more nutritious than rice. Which is cheapest,—rice at 6½ sírs per rupee or ragi at 8 sírs per rupee? The answer was generally, "ragi at 8 sírs." But, the sír of rice weighing 88 rupees, while that of ragi weighs 80 rupees, the calculation runs thus:—

	Rs.	
Rice: 6½ sírs at 88 rupees per sír	=572	
Loss at 4 per cent.	= 23	
Balance, weight in rupees		549
Ragi: 8 sírs at 80 rupees per sír	=640	
Loss at 15 per cent.	96	
Balance, weight in rupees		544

The two may be taken as identical, or, 6½ sírs of rice and 8 sírs of ragi furnish an equal quantity of food,—the *nutritious nature* of the grain being disregarded.

53 rupees. This was the standard weight; the cook-room was provided with scales and weights, and the cooks were to make up each ball by weight; and the superintendent of the relief camp was to test some of the balls every day. The system of moulds was found too uncertain: it was possible to pack more or less into a mould, according to the wish of the operator. Rice, if used, was to be given out in the same way, in balls and by weight: each ball of rice (the rice being boiled in double its weight of water) ought to weigh 66 rupees: pannikins were abolished. A recipe was also added for the materials of the condiments, which formed an appetising soup, half a pint of which cost 3 pies, or 1¼ farthings.

The special gangs are composed of young adults reduced to great weakness through innutrition, but whom it is hoped by generous feeding to restore to health, and of nursing mothers, the number of whom was lamentably few. The old were not treated in this way: in the Famine Code it was laid down that extra food should be given them, but the kind and quantity of this food were left to discretion, and very little had been done to carry out the orders. On relief works, the "specials" were to get the higher or A pay, together with a chupatti, or scone, or ball of ragi containing 4 oz. of flour in the middle of the day. Children under seven were to get 2 oz. of rice-kunji (broken rice boiled in water) in the morning, and the same quantity at noon, besides 3 pies wage paid to the parents for the child's evening meal. In the case of children at the breast, the nourishment was to be given to the mother. In relief-camps, children under seven were to receive 2 oz. of kunji in the morning, 2 at noon, and a ball containing ¼ ℔ of ragi flour in the evening. Adults were to receive a ration of 1¼ ℔s every day, in two meals of 12 oz. and 8 oz., and a light meal of 2 oz. of kunji in the early morning; also ¼ ℔ of meat every other day, boiled in their "condiment" soup. The soup was of the same character as that for ordinary paupers, but it contained less of chillies, more of pulse.

Where a ration is calculated as a bare subsistence, the loss of a tenth part of a twentieth may make the difference between life and death. Visiting relief camps day after day, spending many hours there, making a special study of the quantity of cooked food distributed, and of the physical character of the recipients, it is possible to gain such experience as to be able with accuracy to predict from the look of the paupers whether the ration distributed was full, or deficient by fraud or mistake. On the 20th December 1877, in forwarding to the Government of India the diet circular, Mr. Elliot wrote:—

"The Famine Commissioner has satisfied himself, by personal inspection of nearly every relief camp in the province, and by careful weighing and testing of the food served out, (1) that the one-pound ration is sufficient to maintain in good condition those who are not much reduced by famine, and that in many cases they improve upon it; (2) that wherever the inmates of a camp who have been in residence for some time are found to be specially emaciated, it has been proved that they have not been receiving the full ration, but have been defrauded of it through some peculation or stupidity; (3) that in the case of paupers who have been very much reduced by innutrition, an increased scale of diet called 'special treatment' is necessary, and that with this assistance they often improve with surprising rapidity."

The question of compulsory relief is a difficult one: at first it seemed impossible to lay down any rule, but gradually the experience of the relief officers worked out a tolerably practical solution. The relief officer would visit a village and find in it a family that had no visible means of living. He would invite and urge them to go to a relief work or a camp, and if they refused, it seemed an impotent conclusion for him to leave them to their own folly, and he was tempted to use force. But against this it was urged that, although he might think the people could not live without relief, they probably knew their own state best, and had perhaps stores of concealed grain or money or the means of employment in the village. If they were taken by force there were no means of retaining them on the work. The relief officers relied on persuasion and perseverance: if they came across a village where such cases were found, they visited them again and again till the paupers proved that they could live without relief, or found it less trouble to go to the work than to remain in the village. But in the case of children, the relief officers said to the parents, "You may starve yourselves if you like, but you shall not starve your children;" they gave them warning, and if on a second visit the children were found emaciated, they might be removed to a relief camp.

Where people had left their homes, thrown themselves on the world, and lived by begging, the argument against compulsory relief was less strong. Such persons had no regular means of subsistence, and experience shewed how fallacious was the hope of living on the charity of the public. Compulsion was permitted. The conclusion that Mr. Elliott came to was that if a stream of emigration set in, it ought not to be interfered with. This conclusion mainly rested on the impossibility of stopping them: one might as well try to arrest the flight of migrant birds. An uncontrollable impulse seemed to animate them, and they evinced a persistent tenacity which no efforts could overcome. This was witnessed, in the determination of paupers to come to Bangalor. By whatever road they came in, they must have passed a relief work, where they would have been admitted if they had wanted relief; but no, they had made up their minds to try their luck in Bangalor, and to Bangalor they would go. The only thing that could be done was to spread the net in the town of Bangalor, to catch the wanderers, and to take them to the railway works.

On the same principle, deportation was discouraged: if people had left their homes, it was on the ground that they could not live there; and if they were resolved to go away, no power would keep them there. The officers of the adjoining Madras districts followed a different policy, and deported into Maisur any people who said they belonged to that province. One day a carriage-ful of paupers was received at Kolar, from which district they had said they had come. When they arrived they said they belonged to Vellor, and the Deputy Commissioner sent them back again by train. Another party was sent by train to Bangalor. It was found that they were Tamil-speaking people, so that they could not have been emigrants from Maisur. However, they were set to work, and all left the first day. They probably were relations of the camp-followers of the Madras regiments at Bangalor, and chose this method of obtaining a free passage by rail. In April 1878 the Collector of a frontier district wrote that he had 40 paupers from Maisur in one of his camps, and was going to march them to his boundary on a given

day, where he wished them to be met by an official and taken over and conveyed home. The following correspondence passed between the Maisur and the Madras Governments:—

* * * * * * * * * *

"The principles which have been laid down for the guidance of famine relief officers in Maisur differ from the system on which the Collector of * * * * * is acting. They are, that famine relief should be independent of nationality, that the same treatment should be applied to every person found in receipt of relief in this province, whether he be a resident of Maisur, of Madras, of Bombay, of Hydarabad, or of any other quarter. If sick, he is sent to a hospital; if weak and in need of food, to a relief camp; if able to work, drafted to a relief work. If, after being kept in a relief camp, it appears that he will never be able to work, he is allowed to go to his home with sufficient journey-money and a letter to the relief officer of his own district or taluk, stating his case. The same course is pursued whether his home be in Maisur or across the border."

"The opposite policy proceeds on two assumptions, which are mistaken. One is, that the statement of a pauper that he belongs to a certain place may be presumed to be true; the other, that the habit of wandering can be stopped by deportation or by any other governmental action. It entails useless labour to the local officers who have, under such requisitions, to go to the frontier, to the neglect of important work, to meet and receive the deported paupers. If Mr. * * * * * had given them journey-money, the same end would have been obtained with no trouble, as will have been obtained in this case with considerable trouble to the local officers. If the paupers wished to go to their homes, they would have been enabled to do so; if they did not, no force which can be applied will make them."

The reply of the Madras Government was as follows:—

"I am directed to * * * * * * state that His Grace in Council is unable to concur in the views propounded by Mr. Elliott in the communication under consideration, relative to the relegation of paupers to their homes and the checking of the habit of wandering; but, concurring with him in regard to the difficulty in ascertaining the real homes of wandering paupers, will instruct the relief officers under this Government to institute the most searching enquiries on the point prior to the relegation of paupers to any place."

The Municipality of Bangalor was placed under two officers, and relief afforded out of the subscriptions collected in England.

Captain Healey, on the 29th March 1878, says:—

"On the 2nd December 1872 I was placed in charge of the relief operations in the cantonment, which contain a population of 80,000. It was divided into five sub-committees and twenty-one beats. There were hundreds of people receiving the grain dole who belonged to no beat, while others were receiving it from more than one beat. This was the consequence of the imperfect way in which the beats had been formed, without regard to the streets in which the poor resided. People in the same street belonged to different beats, and there was much confusion.

"To remedy this, I revised the whole according to streets, and formed two new beats for those who were unattached.

"In the week ending 9th December 1877 there were 7,525 persons receiving the grain dole, at a cost of Rs. 2,467-4-6; in the week to 16th December, 7,895,—at a cost of Rs. 2,632-14-3; and in the week to 23rd December, 8,560 persons, costing Rs. 2,772-6-7,—after which the numbers were gradually reduced until now, when the cost of the dole amounts per week to Rs. 290 for 770 old and infirm people.

"I went from house to house, into every nook and lane, inspected the whole of the recipients of grain, sent the strong and able-bodied to work, and set up others in their former trades and occupations. About 3,000 of the former and 5,000 of the latter were thus dealt with. The antecedents of the people were enquired into, and as much care as possible was exercised in the distribution of aid.

I gave—

	Rs.		Rs.
For smiths' tools	5	To fowl-dealers	5
„ Carpenters' tools	10	„ Bakeries	20
„ Goldsmiths' „	10	„ Women, for baking hoppers	3
„ Mills for the use of the Muhammadan women	3½	„ Women pounding paddy	3
„ Wheat to grind	1½	„ Chunar-dealers	3
„ Wood-cutters' tools	5	„ Ground-nut sellers	2
„ A bullock	10	„ Sweetmeat „	5
„ A cart	15		

Captain Healey expended up to the 29th March 1878—

	Rs.
Expended by sub-committees, and details not received	17,000
Grain dole	14,384
Sending people home, (1,500)	3,324
Gifts for trade-capital and implements	15,339
Clothing for 20,000	14,261
Money gifts	441
Repairs to houses	749
Bullocks	452
Miscellaneous	856
TOTAL	66,806

Lieutenant Anderson was relief officer in the Pettah till April 1878. He reports:—

* * * * * * * *

"I wish to state the condition of the town in August and September 1877.

"The grain streets were crowded with stragglers emaciated and enfeebled by famine, who endeavoured to snatch a mouthful of food from the shops. The market-places, the chuttrums, sheds, and verandahs of the houses were crowded with hundreds who lay down to sleep or to die. A person in the streets was importuned for alms by loathsome spectacles; while if he looked, he would find the nooks and corners occupied by the dead and the dying."

* * * * * * * *

"The town consists chiefly of weavers, who had shut up their looms, and who were to a great extent starving in their houses. On their reaching this state, the traders of the town, such as bangle-makers, stopped also; and there being no wages to be earned, the people lived on what money they had, &c. A large number of women are vendors of "hoppers" (small cakes of rice), vegetables, betel-nuts, tobacco, &c.; several hundreds of whom were thrown out of work."

* * * * * * * *

The distribution of grain had begun in the third week of October 1877, when 500 people received it, and the number of recipients mounted to 6,385 in the last week of December. Mr. Anderson's task was to separate those famine-stricken (to be relieved by Government) from those in severe distress whom the charitable funds might support. The number of the former was reduced to 1,000 by the end of December, while 5,000 were in receipt of charitable relief; but in January 1878 the number of those to whom rice was distributed fell to 985, and in April to 400. The class that most required relief were the weavers.

* * * * * * * *

"It has been given according to circumstances,—the class of weaver, number in the family, amount of want apparent in their household, &c. A new loom is covered by Rs. 6, and can be redeemed for Rs. 3.

"The number of weavers relieved was 21,811,—that is to say, families; for if you start the head of the family, the whole family is started: the men at the looms, the young women at the winding-wheels, the old women spinning and winding the yarn, the children assisting with the shuttles. Every member in a weaver's family over 10 years of age should be at work."

* * * * * * * *

"Taking five as an average for each weaver's family, the expenditure of Rs. 14,247 has enabled 10,905 souls to gain a livelihood, who before were in the depths of despair and feeling the pangs of famine becoming daily more severe."

* * * * * * * *

"Deception has been practised, and detected by us to a large extent. I have sometimes gone into a weaver's house, searching to find looms or other instruments, and have found them on the roofs or in the kitchens. Each beat-inspector has his list of persons relieved. I have made after-inspections of them as often as possible.

"Such after-inspections have in most cases shown that the money has been properly used; only in one or two cases have the persons run away and used it for drink."

* * * * * * * *

"On 26th February 1878 I visited 34 houses. Rs. 486 had been expended. I found 63 looms at work, which supported 211 persons of different ages. On 6th March 1878 I visited 51 houses. Rs. 592 had been expended, and 95 looms got to work which, in November 1877, were idle. These two beats give a fair average of the effect of the money."

* * * * * * * *

"The market-places began to be filled by women selling vegetables. Various small shops were set up, and the establishment of other small trades gave evidence of the success of the operations.

"The donors of the Mansion House Funds would be satisfied could they see the effect of the distribution of their money. The people of this country are not demonstrative; but the occupied and happier appearance of their faces, and cheerful sound of the looms and winding-wheels at work, would be sufficient to show them that their generosity had not been misplaced."

Lieutenant Anderson's expenditure was—

	No.	Rs.
Grants to weavers and other artisans	2,181	14,248
„ to petty shop-keepers and itinerant vendors	601	2,655
Repairs of 94 houses		582
Purchase of 32 bullocks for ryots		465
Doles in money to the sick		580
Clothing		5,841
Purchase of raw materials for weavers, &c.		1,505
Distributed by sub-committees		8,170
Grain dole		1,452
Miscellaneous		548
TOTAL		48,882

In April 1878 Captain Mander acted as sole relief officer in Bangalor. His expenditure to the 8th July 1878 was—

	Rs.
Capital to weavers	5,549
„ to other petty traders	7,413
Grants for house repairs	4,476
„ for bullocks and carts	1,247
Grain dole	5,482
Money „	965
Journey expenses	165
Miscellaneous	825
TOTAL	26,122

Another duty within the Municipality was the collecting of wanderers and beggars, and making arrangements for their relief. These orders had been carried out with good effect by the municipal police; street deaths had been almost stopped; the troops of beggars had

diminished, and the distribution of broken victuals at the houses of officers in the cantonment, which had been both the effect and cause of the prevalence of beggary, had ceased. A strong establishment had at first been appointed for the Municipality: towards the end of December 1877 it was found possible to dispense with nearly all of it, only two officers and six men being kept to assist the regular police, and six doolie-bearers for the sick. The system was: Every morning at daylight a party was sent out with a cart from each police station to search for the sick and the beggars; all the parties converged at a central police station before 8 o'clock. The special relief officer would sometimes go with one party, sometimes with another, to see how they did their work; sometimes alone. Only the sick and weakly were collected on Saturday or Sunday, because on those days it was impossible to send labouring people to the relief works. The ordinary number collected was 50 in the pettah, and 20 or 30 in the cantonment every morning; but on Monday mornings the number collected was larger, amounting to 300 altogether. From these two central places they were marched, or carried in a cart, with an invoice shewing their number, so as to arrive by 9 A.M. at an open space in front of the Pettah relief camp, where a special officer, after counting them, signed the invoice and returned it to the police officials. His duty was to sort and dispose of them. The sick were sent to hospital, the infirm and old to the relief camp, the emaciated and feeble to the special gang, and the able-bodied to the railway. The convalescents from the hospital were drafted into the special gang after being retained for a time in the relief camp. Children who declared that their parents lived in the town, and that they were not begging but playing about when caught, were sent to the police. The power given to the police of making indiscriminate arrests was large, and required more discretion than ordinary police constables possess: incessant supervision was therefore necessary. The two special relief officers and the Assistant Superintendent of Police accompanied the parties on their beats or to inspect the paupers when collected by them at the two central posts or at the Pettah camp, in order to see that no one was improperly seized. The system was understood by the people, and those who voluntarily applied for employment used to come to the place, finding this the easiest way of being set to work.

The following table illustrates the procedure:—

Paupers, how distributed.	WEEK ENDING								
	February 1878.				March 1878.				
	2nd.	9th.	16th.	23rd.	2nd.	9th.	16th.	23rd.	30th.
Relief works	1,025	911	860	735	882	799	761	975	1,038
Special gang	329	442	218	158	134	100	86	110	216
Pettah camp	75	80	32	45	32	31	57	59	10
Hospital	64	56	65	42	31	68	34	113	30
Total number .	1,493	1,489	1,175	980	1,079	998	938	1,257	1,294

A difficulty arose from the difference in the scale of pay of the special gang. They received A pay and a meal of cooked food, and did little work. When sent to the railway, they were placed in the B class, received the civil (B) rate of wage, and tasked to 50 per cent. of the ordinary labourer's task. The change was distasteful, and they constantly deserted the working gangs and tried to shrink back into their old places in the special gang. The special gang was then divided into two classes, the most emaciated getting A pay *plus* food, the majority getting pay only. On the 3rd January 1877 a further step was taken,—only the most emaciated were allowed A pay, the rest received B pay, and neither class got any food. The object of this was to discover whether they really expended the cash wage on food in addition to the meal of cooked food, or whether they saved it. Experience disposed of this doubt, for it was obvious that they did not improve so fast as they used; some became discontented and broke away. After a fair trial, the order was revoked on the 14th February 1877; the two classes in the *special* gang received the A and B wage respectively, also a half-pound meal of cooked food. This was the best solution of the difficulty, though the drop from B wage *plus* one meal with little labour to B wage alone and hard labour was felt.

The majority of the people when they first came on the works were suffering from two diseases, the results of privation,—itch and ulcers. If a man struck his foot with a pick-axe, a sloughing sore generally followed; and some cases of itch were so severe that the sufferers could not close the fingers of the hand or walk a step without great pain. Several men slightly trained in dispensing were employed to go up and down the line with a pot of sulphur ointment and oil to anoint the itch cases, and a supply of warm water, simple dressing, and

rags for the ulcers.[1] By the end of January 1878 these had nearly disappeared, but fever then prevailed in a great degree. The people often felt too ill and dispirited to do their day's task, and would leave it, to lie down under a tree. Efforts were made to have them hunted up and paid their day's wages, but among a mass of people it was hard to do this; they often lost their pay, and refusing to go into hospital, grew weaker and weaker till they were at the point of death. At this time the huts were in great disfavour from their being infested with fleas, which swarmed in the cold weather; very few people would inhabit them, the majority preferring to lie in the open ground.

The only remedy for this is a system of patrolling. A cart was sent out from Bangalor every morning with the party of labourers despatched from the Pettah camp, with a special patrol in charge, and a small stock of cooked food. The patrol had orders to pick up persons on the road unable to walk and to convey them to the Kingeri hospital. These measures were successful, and after they were adopted no more of such deaths occurred. Every day the carts picked up 10 to 20 sick persons on the road. The system was extended to beyond the furthest point at which the railway gangs were working, or over 40 miles of road.

The mass of people who came to the work of the State Railway to Maisur improved in condition, and were cheerful. There was much sickness, and there were many idlers whom no compulsion could force to work. Those who were good workers, but not habituated to work as coolies, were seized with a craving to return home: probably none of these stayed more than two or three months on the work, but many returned. When the work was started, and heavy embankments had to be raised close to the town, it was impossible to enforce the distance test, and crowds of camp-followers flocked to the work, who fell off as this portion was completed. The result of sickness, nostalgia, idleness, improvement of prospects, and the distance test, was gradually to reduce the numbers. They stood:—

		Numbers.
Beginning of November	1877	20,398
December	„	20,700
January	1878	18,337
February	„	15,600
March	„	14,647
April	„	12,332
May	„	10,809
June	„	10,806
July	„	10,410

This decrease continued in spite of the daily additions sent from Bangalor, which amounted to 800 or 900 a week.

Major Moncrieff, on the 24th October 1877, after inspecting the State Railway to Maisur when the work had not long been begun, stated that the difficulties were:—

"(a) Trouble about payments; want of chests large enough to hold copper coin; delay in getting it from the treasury; want of cashiers, obliging officers themselves to spend long hours in paying coolies. More trouble has been given to the officers and more disappointment to the coolies from mis-arrangement of payments than from any other cause. The trouble is the small number of cashiers. Measures must be taken for obtaining more. For the first three or four days, labourers must be paid daily. If they come on Monday or Tuesday, they may be so paid until the end of the week. After that, it should be quite enough to pay them thrice a week, one-third on Monday and Thursday; one-third on Tuesday and Friday; one-third on Wednesday and Saturday. A cashier can pay 1,000 men daily, so that in three days he should pay 3,000. Considering the number of fresh arrivals on daily payment, it will be enough to allow 2,400 coolies to each cashier.

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[1] The following instructions were drawn up by Dr. Henderson:—

"The best remedy for itch is sulphur in a thin paste, with oil in the proportion of 1lb of sulphur to a bottle of oil. This is well rubbed into the part affected once a day. The people should be collected in one spot at the close of the day, and the remedy applied under the eye of a trustworthy person. About 1 oz. to each person is an average quantity, and this may be placed in a plate round which four persons can sit, and apply it for themselves.

"For small ulcers an ointment should be made:—

Gingely oil	1¼ lb.
Bees' wax	1 „
Turpentine	2 ounces.

"Heat the first two, and add the turpentine when cooling. Or a very useful dressing can be made from—

Camphor	1 part,
and	
Gingely oil	4 parts,

which also makes a good liniment for rheumatic pains in the joints.

"The ointment should be applied spread on a piece of cloth.

"If water can be had for washing both kinds of patients, the cure will be more readily effected.

"The following would be the probable daily requirements of 100 of these patients:—

Sulphur	6 lbs.
Oil	6 bottles.
Bees' wax	2 lbs.
Oil	2 bottles.
Turpentine	4 ounces.
Cloth	6 yards.
Chatties	6
Baskets	4
Scissors	1
Spatula	1
Plates, mullays	24

"To each working gang (or group of working gangs, when contiguous) should be attached—

1 Pandit, or man in charge, who can dress sores and supervise,
1 Peon, and 2 coolies,

on Rs. 10, Rs. 7, and Rs. 6, respectively.

"The cost of their pay, as well as of the materials required to prepare the remedies (Rs. 20 or 25 per mensem) per gang, should be debited to the work."

"(b) Insufficiency and incapacity of mustering-writers. They come one day, make out a muster-roll, and walk off with it next day. The Assistant Engineers should retain their original certificates as security. They may promise them an increase of pay after a month's good service, and must try to make the writers comfortable, providing huts for them in the camps. As the work extends from Bangalor this will be very necessary.

"(c) Whole gangs disappear in the evening, and do not return. They often steal their tools. The best remedy is the provision of suitable camps. Executive Engineers must see to this; erecting camps to hold 600 each as they are required. From beyond the 3rd mile-stone on the Maisur road, labourers should not be obliged to return every night to the Pettah. The tools must all be stamped, and, to lessen the temptation to receive them in Bangalor, none should be bought in the local market. Proper store-houses must be provided for the tools.

"(d) Officers are swamped by new arrivals. When fully employed, suddenly 1,000 fresh coolies appear, and they are required to pay them forthwith. This throws out all the machinery. I begin with the unit of the cooly gang. It should consist of 50 work-people, besides children under seven years of age. There may be from 12 men, 24 women, 14 children, to 20 men, 20 women, 10 children.

"There should never be more men than women; the women should never be more than double the number of men. The best proportion is 15 men, 25 women, 10 children. It should vary with the length of lead. Over this gang is a head cooly; to every 4 gangs or 200 coolies, 1 mustering-writer. To every 24 gangs or 1,200 coolies there should be a sub-overseer or maistry; to every 48 gangs or 2,400 coolies, an overseer or supervisor. Two overseers' charges, or 4,800 coolies, is as much as should be given to an assistant or sub-engineer as his sub-division; such a sub-division ought to occupy about two miles, the officer in charge spreading out or massing his labour according to the work. The Executive Engineer's division should consist of not more than three sub-divisions, employing labour amounting to not more than 14,400 coolies, exclusive of children under seven years old. Each overseer will have attached to his section one cashier. While the numbers are daily on the increase, the Executive Engineer must procure cashiers, maistries, mustering-writers, and head coolies.

"The Executive Engineer should see that his sub-divisions are working up to full strength, and that the gangs have their proper proportion of men, women, and children; should be in daily communication with the civil relief officer; should endeavour to take the labour he may offer; should take care that it is not sent where the sub-divisional officer is not ready to receive it; should be able to take fresh labour of 400 labourers every alternate day. Thus the numbers in the division will increase 3,600 weekly. The relief officer ought not to deal direct with the assistant, but with the Executive Engineer, who should state where the fresh labour should be sent.

"(e) There is an entire disregard for sanitation. Latrine trenches should be dug at convenient sites, and labourers forced to resort to them.

"(f) The coolies sit a long time in the morning, waiting to be mustered, or for their tools. This will be remedied when proper camps are formed. In each camp a drum should be sounded at sunrise, and each head cooly should carry off his gang and set them to work. The writer should muster them when on the work.

"(g) The drum should sound again at 5 P.M., when all work should cease.

"(h) One of the camps I noticed unprovided with drains.

"(i) Assistant Engineers must bring to notice any want of medical attendance, and must be responsible for their sick. They should report if they are not visited by hospital subordinates supplied with drugs.

"(k) Code orders, Chapter I, Sections I—VIII, had not been carried out, as to providing shelter for infants at a distance from the work-parties. Officers must pay special attention to the condition of these children.

"(l) Complaints have been made of the coolies wandering into adjoining fields and stealing heads of grain. To keep order, the Executive Engineer may entertain three police peons for each camp, paying them Rs. 7 per mensem, and giving them some distinguishing badge."

An Assistant Engineer, with 3,000 coolies under him, extended over two miles of the line, might have three different classes of labourers ganged together, and working half a mile apart:—the A1's, who had to do a full task and received a wage proportionate to what they did; they could be cut down to nothing if they did nothing;—the A2's, who did ¾ of a full task and received the A pay if they performed it, and could be cut down to the B pay if they failed;—the B's, who had to do ½ of a full task, but could not be punished further than by cutting 3 pies of their pay, and that only when the non-performance was contumacious.

Mr. Hoernle, Assistant Engineer, states that piece-work is unsuitable to most classes of labour, and unattractive where suitable. The task was such that one man and two women, who at subsistence rates would receive 5 annas 10 pies per day, earned as much as 12 annas, being skilled labourers and accustomed to digging; but the average receipts of the whole gang were only annas 5-8 in one case and annas 5-3 in another, the relief wage being annas 5-10.

"Whenever I specified a certain depth, I found the pit contained less than it should have when measuring up the work, owing to the length and breadth having been reduced, so that the men could not be paid the full amount. This used to make them suspicious that they were being cheated.

The result of a fortnight's work in this cutting was, that one man and one woman earned on an average annas 3-4; the amount they would have received if paid on daily wage being annas 4-2.

"It will be fairly successful where the pits can be made of fixed dimensions, for which a fixed amount will be paid, so that the men will be able to judge for themselves of the amount of their earnings and of the justice of the payments."

77. Mr. Penny, Executive Engineer, states—

"To encourage them, a system of piece-work was started. As, under favourable circumstances as to strength of people, softness of soil, shortness of lead, it was found that—

	Annas.
Two men @ 2½ annas	5
and 4 women @ 1½ annas	6½
Total being .	11½

could execute 8 cubic yards in one day, an offer was made to give one rupee for 8 cubic yards, whether done in one, one and a half, or two days. This was offering half as much again as the work was worth. Piece-work never became popular. The men tried to swindle the women, when not of their own family, or caste, or village, and the women refused to work in concert with the said men, and thus it frequently happened that a promising set of piece-workers reverted to task-work, although that involved doing more work for the same money. The task-work wages at least insured a subsistence, and were doled out regularly, and according to strict justice; and they preferred to abide by them, rather than trust each other to divide equitably the larger profit derived from piece-work. Unless the whole of the piece-work gang pulled well together, it was found that more than A wages were not earned at the end of the day, *i. e.*, that the 'rupee-pit' was not more than two-thirds finished. This discouraged the non-professional labourers.

"It would be impossible to carry on a relief-work on the piece-work system alone. The associations to undertake a 'rupee-pit,' or any other unit of work, must be perfectly voluntary; and there must be the regular task-work for each malcontent to fall back upon as soon as he ceases to agree with his temporary partners in the pit.

"As a means of encouraging the best of the famine labourers to rise above the dead-level of the famine wage, the piece-work system is invaluable."

The conclusion is that on all large relief works there should be a piece-work gang into which the able-bodied should be drafted, and which others not classed as able-bodied should be allowed to join if they wish; that the system should only be tried in places where the quantity of work can easily be estimated by the labourers themselves, and the rate remains unaltered for a long period; but that the attempt to carry on famine relief *solely* on a system of piece-work payments must necessarily result in failure.

Mr. Rigg elaborated an ingenious system of tickets. The roll was called in the morning, the tools were distributed, and the coolies sent to work. During the day, the overseer distributed tickets to those at work. The tickets were of tin, stamped differently and of different shapes for men, women, and children, for the A and the B class. In the evening no roll-call was necessary; the people marched up to the pay-table, headed by their gangsmen, each presented his ticket and was paid what it represented. He found it easy to pay 1,000 or 1,200 coolies in an hour. An extension of this system is possible, under which the tickets should pass as token-coins with the local trader: this would save the trouble of daily payments. Once a week the officer might bring out his pay-table and cash all tickets which any of the coolies or the grain dealers presented. The only danger this method involves is that of forgery; but the risk would hardly be serious, except near a large town like Bangalor.

The most difficult detail on a relief work is the exaction of the prescribed task. To measure each individual cooly's work is impossible. The smallest set conceivable would consist of 1 digger and 2 or 3 to carry away the earth; and the sets often consisted of 3 or 4 to dig, and 9 or 12 to carry. Discretion is required, lest all should be punished for the fault of a few. If the group consist of a single family, or have come together of its own choice, this would be just; but if it consist of a number of individuals who cannot influence each other, the punishment is hard on the diligent.

Mr. Penny's remark may be quoted:—

"The plan was to divide a large gang into small parties, and task each party according to its strength. A unit of two 'getters' of earth and four 'carriers' (where the lead did not exceed 100 feet) was aimed at. The getters used indifferently a pickaxe or a mamuti, being supplied with both tools. From two such men a task in ordinarily soft soil varied from two to eight cubic yards per day, according to strength. The men who could 'get' between six and eight cubic yards per day between the pair of them were called A1; those pairs who could not 'get' more than from four to six cubic yards were considered A2; while the pairs who could turn out no more than from two to four cubic yards were termed B: below this outturn the workers were called 'specials,' and were treated with especial tenderness. The number of carriers (always women) was increased or diminished according to the length of lead. The carriers were always paid in full when none of the earth excavated remained unremoved at the end of the day, no matter how lazy the men may have been.

"Vigilance was required to prevent strong people from slipping into the category below, and there easily earning the daily wage without cuttings. The difficulties, however, were surmounted, and task-work soon became the normal state of affairs on the railway. Not only did every overseer know how much work he had to exact for a full day's wage, but every labourer how much he was expected to do in order to avoid cuttings.

"But they would not always do what they knew had been allotted to them."

Keep the groups small enough to be able to distinguish where the fault lies if the task is unperformed, and yet so large as not to make it impossible for the supervising officer to have a discriminating knowledge of the amount of work done by each.

The sliding scale requires constant changes to be made in the wages, according to the changes in the price of grain; this was not the custom of the country, and was found to be a source of suspicion. It was better to lay down a general rate which should approximate to the rate of the sliding scale, and should not be altered as long as prices ranged within certain definite limits. The rates of wages were fixed on the 14th November 1877, rice being 12 lbs. per rupee:—

	Public Works Department or A rates. A. P.	Civil or B rates. A. P.
Men	2 6	2 0
Women	1 8	1 6
Working children	2	1 0

In closing the Civil Relief works and transferring the labour to the railway, the following instructions were given:—

"The first thing is to declare that the work is stopped, but that all labourers on the register will get pay till they are disposed of, in one to three days.

"The special officer should enquire into the case of each labourer and see how far the Charitable Relief Fund will support him. To the cultivators with land and crops, he can give as much as is needed for their sustenance till their crops are ripe: if their land is waste, and they have no means of cultivating it, he can give them money for bullocks, seed-grain, and food till the next crop comes. To the weavers, he can give money to re-purchase looms if their looms are sold, to buy thread, and to start again.

"He should separate the rest of the labourers into two gangs:—

"(1) Those emaciated, feeble, and sickly, or those able-bodied who can satisfy him that they, or those dependent on them, are in absolute want and would suffer severely if not employed.

"(2) Those able-bodied who, it is obvious, are not in immediate want, and who are not fit objects for charitable relief.

"The first class should contain those who, on a liberal interpretation, would, if they applied, be admitted to a relief camp.

"They should be urged and induced by every kind of persuasion to go to the public works; should be told that they will be marched there by easy stages, and fed or paid on the road; a day should be given them to collect their cooking-utensils, &c.; they should be paid for that day, and should on arrival be placed on the special gang and fed, as well as paid, till they grow strong. * * * The prospect of full pay on the A scale, plus a meal, should be held out to them, together with the promise of a cloth and blanket on arrival. With these inducements, and the exercise of tact and firmness, they may be induced to go. If they refuse, they should be told that they will be received in the relief camp in case they are in want. Their names should be taken down and given to the special relief officer of the taluk, and their case entrusted to the operation of the rules for village inspection, the shaihkdars and patels being ordered to look after them.

"The people in class (2), if they will volunteer to work on the railway, should get an advance for the road and a ticket of admission; but no compulsion should be used. If they refuse to go, they will not be re-admitted on any civil relief work."

No detail in the administration of relief gave more anxiety than that of "cutting." It is the easiest form of punishment, and one to which subordinates are prone; yet it is a punishment which requires care in its exercise. The first essential for making punishment effective is, that it should be just; the second, that it should be judicious. In order to secure the first essential we require—

(1) that the task should be a fair one;
(2) that it should be marked out beforehand, so that the labourer should know what he had to do;
(3) that what he has done should be measured up by a competent officer,—not guessed at nor reported on by an underling, but so tested that the labourer himself may see the deficiency and understand what he has to do in order to secure a full wage.

All these requisites were found on different occasions to be wanting. The task was frequently too heavy; stone-breaking requires much practice, yet paupers who had never handled a hammer were set to do as much as a skilled labourer could do. The task was not known to the coolies: and frequently what they had done was not measured, but roughly glanced over and pronounced insufficient; a native subordinate would bring a gang at pay-time and say, "This gang has not done its full task, and should be cut," and cut they were.

To serve the second essential :—

A punishment always inflicted ceases to be punitive: the people accept the low scale of pay as the rule. If pay is always cut, the fault is as much with the officers as with the people. The true principle is to let the people taste the sweetness of the high pay as well as the bitterness of the low; to begin with the high, explaining the conditions on which it is to be earned; to be patient with them till they have settled down to the work: to cut their pay if they continue to be idle; to cut that of the head coolies and gangsmen, who ought to stimulate them to work; to raise the pay again to encourage them; and to sub-divide the gangs so as to distinguish the idle from the diligent.

Major Moncrieff, who inculcated this method, laid down—

(1) that no labourer should be cut by the order of any one below the grade of an Assistant Engineer;
(2) that the weekly return of numbers employed, wages paid, and work done should include a statement of the numbers fined for short work, and the amount cut.

These rules put a stop to indiscriminate cutting, and effected a great improvement.

In December 1877, the ragi harvest was maturing and the Revenue officers were exerting themselves to realise the Government demand for the year, as well as the arrears of past years, from the cultivators. A number of ryots had had their rights sold for arrears,—a measure of extreme harshness in a time of famine. An amaldar had reported that so-and-so was in arrears and ought to be sold up; the Native Assistant Commissioner in charge of the routine work of the office sanctioned this, and signed the order himself "for Deputy Commissioner:" thus it was never laid before the responsible officers, who would have acted with discretion and humanity. It came upon them as a revelation that several (in one district, hundreds of) ryots had been sold up for not paying what it was impossible for them to pay. Where possible, the charitable fund was applied to buying back the land thus alienated, and to restoring the ryots to their position.

The main difficulty in collecting the revenue of the current year 1877-78 arose from the fact that a smaller breadth of land than usual had been cultivated, and that the crop was poor. All irrigated land was safe, the tanks being full and the streams and springs abundant. The deficiency was on the dry land; it was assumed that a cultivator can live ordinarily on the produce of half his fields, and that where he had cultivated more than half, he could pay his assessment; where the nominal owner of the land was not the actual cultivator, but a capitalist who had sub-let it, that he should be called on to pay. The Chief Commissioner on the 26th December 1877 ruled :—

"Postponement, not remission, will be granted.

"Wet land will be treated under the rules in force in ordinary years.

"All revenue due from persons who hold pattas, but are not *boná fide* ryots,—*i.e.*, do not themselves cultivate—will be collected in full.

"All revenue due on dry lands will be collected in full from ryots who have cultivated half or more than half of the area of their holdings, and also all revenue due on holdings which contain wet land growing vaisakh crops, as well as dry land.

"Subject to the discretion given to Deputy Commissioners in the next paragraph, no revenue due on dry lands will be collected during this year from any *boná fide* ryot who has not sown half the area of his holding. But next year, 1878-79, provided the crop is ordinarily good, he will have to pay up the demand for both years, no interest being charged on the balance.

> "No difference will be made between settled and unsettled taluks.
>
> "In settled taluks, the principle is that ryots must take the good years with the bad, and that no reduction can be granted; but the calamity to the crops of this year and the two last years has been such that the rule must be set aside."

Preparations were made for closing relief measures. On the 22nd December 1877, the grain dole given to the sick and bed-ridden at their own homes in the villages was stopped, but it was provided that a sum of money equal to the dole for three months should be given to each recipient, so that he might not be cast adrift. The number of relief camps was reduced. At the end of December they were 40 in number, and the people relieved in them (excluding 8,000 sick), 5,631; of these, 30 per cent. (1,600) were the establishment for cooking, guarding, and waiting on the paupers. The remainder, 4,000, "consisted of the infirm and aged, who took refuge in the camps because their relatives refused them support; and of the emaciated young people and children sent in by the village Relief Inspector." It was proposed to send the former home with money, equal to two or three months' support, the possession of which would lead to their being received with kindness; and to keep the others in camp till they were strong and could be sent to work or helped by charitable funds to start again in their old occupations.

On the 17th of October 1877, the Government of India directed that a test census should be made, to discover what the actual loss of life had been in selected tracts, and that it should be taken on the 19th of January 1878. The points ascertained were: in the interval between the preliminary and final numbering, the death-rate was 127·8, and the birth-rate 7 per mille per annum; the ratio of loss in the circles enumerated was 28·77 per cent., but, after allowing for the tracts least affected by famine (in few of which the test census was held), was reduced to 25 per cent., 1,260,750 people varying from 47 per cent. in the worst circles to 5 per cent. in those least affected. After considering the probable return of emigrants, and allowing a margin of error in the returns, it seems that the province decreased in population by 1,100,000 through the famine, and that of these the diminished birth-rate accounts for 50,000.

The Chief Commissioner, resting his conclusions on the statements of the survivors in the villages under census, estimated the total loss of life at 700,000, and anticipated that the absentees would return in due time.

In the districts examined, the area actually cultivated bore the following proportion to that usually cultivated :—

Bangalor	71 per cent.
Kolar	74 ,,
Tumkur	57 ,,
Hassan	60 ,,
Chitaldrug	57 ,,

The ratio borne by the year's crop to that of a fairly good year was estimated from one-half to three-sixteenths in the case of dry crops in different taluks. The early rice was mostly a failure, but the late rice, sown over a large area, was expected to produce a full crop.

A consensus of opinion points to the assumption that for dry land an estimate of 640 lbs. per cultivated acre, and for wet land 960 lbs., will not be far from the real produce in a good year. The figures below are for revenue-paying lands alone, the areas and population of inam villages being omitted; and in Chitaldrug a deduction has been made on account of the cotton-growing area :—

Districts.	Population.	Acres cultivated.		Food-crop of an average year, in khandis.*		
		Dry.	Wet.	Dry.	Wet rice.	Total.
Bangalor	759,816	640,971	67,008	1,281,942	201,024	1,482,966
Kolar	588,484	563,403	77,712	1,126,806	232,136	1,359,942
Tumkur	587,621	684,465	103,565	1,368,930	310,695	1,679,625
Hassan (7 taluks)	444,596	538,546	78,187	1,077,092	234,561	1,311,653
Chitaldrug	522,293	445,190	65,906	890,374	197,718	1,088,022
Total . . .	2,902,810	2,872,575	392,378	5,745,144	1,177,134	6,922,278

This calculation gives an outturn of 2 khandis of dry grain and $\frac{2}{5}$ of a khandi of rice per head of population. But there are deductions to be made. Probably an average year would not contain two average seasons, and the ordinary production of both crops taken together should be put at 5,800,000, or 2 khandis per head. The seed grain (8 sirs per acre for dry and 25 sirs for wet land) comes to 490,000 khandis; the waste during a year may be estimated at 5 per cent., or 290,000 khandis, leaving a residuum for consumption and export of 5,020,000 khandis. The average annual export of ragi is returned at 322,000 khandis, leaving a balance of 4,698,000 khandis. The consumption per head of a labouring adult when well off is 1 sir, or 2 lbs., a day,—rather above it than below; allowing for those pinched for means, 2 lbs. may be taken as an average ration for an adult; and when women, children, and infants are considered, the ordinary consumption per head cannot be reckoned at quite 1½ lbs. a day. Take 480 lbs., or 1½ khandis, as the usual rate of consumption per head per annum: by this estimate, a population of 2,902,810 would consume 4,354,000 khandis, leaving a surplus of 344,000 khandis out of the produce of an ordinary year.

* 1 Khandi = 320 lbs. = 4 maunds.

In times of famine, the consumption is greatly diminished. Not only do the people eat less, but they also supplement their diet with articles little used at other times,—roots, berries, green leaves of wild plants resembling spinach, seeds of the different grasses, and of the wild ragi. There seems reason for holding that the consumption is reduced to 1 khandi per head per annum, which allows for an adult about 1⅓ lbs. and for a child ⅔ lbs. of grain a day. No one who was badly off was forced to sell his crop to pay his revenue. A larger part of the rice-crop than usual became thus available for food. The following table gives details :—

Districts.	Estimated Population.	Acres cultivated.		Food-crop of 1878 in khandis.		
		Dry.	Wet.	Dry.	Wet.	Total.
Bangalor	528,694	507,441	52,527	350,842	197,291	548,133
Kolar	403,592	434,771	88,513	283,230	279,519	562,749
Tumkur	378,691	399,777	89,203	226,360	305,907	532,267
Hassan (7 taluks)	345,736	440,269	72,428	422,237	215,491	637,728
Chitaldrug	331,170	372,736	66,515	306,562	198,058	504,620
Total . .	1,987,883	2,154,994	369,186	1,589,231	1,196,266	2,785,497

The total calculated produce gives 1⅖ khandis per head, and, assuming that half the rice-crop would be used as food, the harvest would provide 2,187,000 khandis, or a little over 1 khandi a head. The crop harvested, aided by the produce of the late rice then in the ground, produced enough food to support the people on the reduced famine rations. That this was so, was due to the service done by the tanks, and to the terrible mortality, which had diminished the population by 915,000.

Compare this with the prospects of the corresponding period in 1877. The area sown had been but little reduced, but the wet crops had almost entirely perished, and the outturn on the 2,872,000 dry acres was about a fourth of an ordinary crop, or 1,436,000 khandis, and this had to be divided amongst 2,902,000 people. Instead of 1⅖ khandis, there was but ½ a khandi per head, which was not enough. The figures for the whole province were better than for these, the worst portions; but for the people of these taluks to be fed, it was necessary that they should be able to purchase, and the purchasing power of the lower classes, never very large, had been absorbed in the first year of the famine, and was altogether wanting in 1877.

The duties of the special relief officers were defined on the 12th February 1877.

* * * * * * * *

"(1) to feed with labour the selected relief works; to make the re-existence known; to induce persons in need of employment to go to them; to see that proper arrangements are made for their supervision—for the admission of applicants—for their tasking and daily paying;

"(2) to see that shaikhdars carry out the inspection of their villages with activity; that they keep up Register A for each village, placing on it the names of all those who are sick, infirm, and incapable of labour; that they distribute the grain-dole regularly to those on Register A, and that they enter in their inspection-book their visits to each village;

"(3) to distribute the Mansion House Funds systematically, village by village, to those who have a profession in which they can maintain themselves if once enabled to make a start;

"(4) to keep the police up to their duty of patrolling the roads, of relieving cases of urgent distress they meet with, and of reporting the number of the famine-stricken and of roadside deaths;

"(5) to keep themselves informed of the condition of the people and the country, and to carry out and report any measures necessary for making the system of relief more efficient."

The numbers employed on relief works are given below :—

Districts of Maisur.	Average numbers on Relief Works during the period ending										
	1877.				1878.						
	29th September.	27th October.	1st December.	29th December.	26th January.	23rd February.	30th March.	27th April.	1st June.	29th June.	27th July.
Bangalor . . .	14,221	28,147	36,802	29,849	22,530	22,392	22,949	18,636	16,581	14,578	13,555
Kolar	7,767	9,654	3,154	439	375	508	1,398	2,184	1,918	1,627	1,455
Tumkur . . .	10,445	14,515	21,744	13,919	14,069	16,261	21,080	19,349	15,513	12,226	11,392
Maisur . . .	6,356	6,224	4,746	2,970	1,963	1,960	1,581	1,785	1,617	517	431
Hassan . . .	3,694	2,673	2,274	1,834	1,394	1,743	3,343	2,734	1,393	1,019	852
Kadur . . .	2,728	3,044	1,108	937	542	400	574	1,219	1,216	1,169	661
Shimoga . . .	2,284	2,686	452	635	190	...	...	...	...	...	...
Chitaldrug . . .	8,151	7,216	5,270	4,690	4,134	3,570	4,817	8,462	7,652	6,494	5,079
Total . .	55,646	74,159	75,550	55,273	45,197	46,834	55,742	54,369	45,890	37,630	33,425

The Province of Maisur.		Average number during the period ending										
		1877.				1878.						
		29th September.	27th October.	1st December.	29th December.	16th January.	27th February.	30th March.	27th April.	1st June.	29th June.	27th July.
Gratuitous Relief.	Relief camps .	...	...	...	...	...	...	3,233	2,672	2,180	2,247	2,411
	Villages . .	...	...	...	...	...	...	2,191	7,602	8,807	10,013	10,653
	Total .	179,489	81,873	33,193	15,027	6,959	3,704	5,424	10,274	10,987	12,250	13,064

The relief camps since the beginning of 1878 were little more than hospitals. The number who received the grain dole in their villages in 1877 was not large, but cannot be accurately given. Since the dole was received in February 1878, the number rose to 10,000, or 0·5 per cent. of the affected population. It was impossible for the relief officers to visit every village, and, till they had done so, it was probable that some one would be placed on the list who was unworthy, or some one omitted who was not. This was due partly to want of discretion on the part of subordinate officials, such as shaikhdars, and partly to want of honesty on the part of the village officers, patels and shanbhogs. It is unreasonable to expect that they could resist the temptation of placing their own dependants on the dole. The general opinion is that the percentage of improper recipients was small, and that much was done toward saving life and preventing suffering and death.

The Madras Committee who received the subscriptions from England and the Colonies for the famine in the South of India decided that Madras and Maisur should share in the proportion of three-quarters and one-quarter of the total amount: thus Rs. 16,53,900 were given to this province.

It was decided that a proper field for the expenditure of charitable funds would be the supplying hospital comforts to the sick, and clothes to the paupers in relief camps or relief works. Thousands of cloths[1] were bought, till the local market was drained and supplies had to be obtained from Madras. The distribution of cloth was most demoralising. An officer would go into a relief camp and give out cloths to every inmate; next morning they would all appear in their old rags, having made away with the presents. He would insist on the recipients of new clothes bringing their old ones to burn before him; still the exchange of old clothes for new went on. On a relief work he would pick out all the people that were badly off for dress, and give them clothes; next morning all the excluded ones would shew themselves in a state approaching to nudity. They sold, for three or four annas, the cloth just given them at six times the cost, and efforts were vainly made to buy these second-hand cloths in the market. This form of charity fell into disrepute, the gift of clothes being reserved for a special occasion, to encourage labourers marched from one work to another, or as a reward for a large task performed; but to the last, whenever relief officers came to inspect a work, the cry of the women was "no clothes."

Some was spent in journey-money to assist people who could not labour, who had wandered from a long distance, and who wished to return home; and some in doles of cash. This was unsatisfactory. There were instances in which a grant of money was excusable, as, when the inspecting officers found a woman with a family whose husband had gone away to the coffee plantation, and had been unable to remit any pay. But to give money to paupers, because they were poor, was to demoralise them. There were cases in which it was hard to know what to do to help a poor creature; by degrees, even the greatest strangers to political economy began to see the evil of such a procedure, and to hold their hands.

It was established that the main use to which the money should be put was in restoring people to their ante-famine condition. The principal class to be helped were cultivators, who had lost their bullocks, and who, unless they could re-purchase them, could never hope to resume their hereditary position, but must sink to be field labourers and common coolies. Where land had gone out of cultivation through the total extinction of a ryot's family, an effort might be made to raise a field labourer to the rank of a ryot, to fill the racant place.

Some portion of the charitable funds were devoted to the support of the children, orphans or deserted by their parents.

Altogether, it is probable 6,000 or 7,000 orphans were provided for. But the mortality was grievous; not only were hundreds picked up in the last stage of exhaustion, but numbers, received into the orphanages in apparent health, would thrive for a time (two or three months), and then sicken; the feet swelled, diarrhœa and famine-dropsy ensued, and the child died in a week. This was due to no want of care, of diet, of nursing, or of accommodation, for nothing could exceed the tenderness and solicitude with which they were treated in the orphanages, especially in that managed by the lady of Kolar and in that by the nuns in Bangalor;—it was the result of the internal destruction of tissue which had set in before they were

[1] A woman's cloth, or "sari," costs in Bangalor Re. 1-10 to Re. 1-12.
A man's "pancho" costs 5 to 9 annas.
A girl's "kerrige" „ 6 to 12 annas.

rescued, and which nothing could arrest. Hardly more than one child lived out of three; and in May, of all those who had been picked up, only 2,250 survived. Provision has been made for the accommodation of 2,515 orphans altogether by different charities.

The conditions on which the orphans were surrendered to these orphanages were, that nothing was to be done to prejudice their being reclaimed by their parents, or by any relation entitled to claim them; they were not to be baptised, nor fed in a way to affect their caste; but it was open to the managers to impart instruction in the Christian religion and in other matters. Every facility was to be given to parents to reclaim their children; and a great number were thus restored. The Roman Catholics have an advantage by reason of the large number of Christian villages attached to their Mission. The London Mission have taken a few orphans, and will probably train them as teachers in their schools. The Wesleyan Mission, newly established in the province, and the lady of Kolar, will feel the difficulty more severely than the others. The Chief Commissioner hopes to employ them in agriculture on the deserted lands, or in populating the depopulated villages.

The following statement shews the expenditure by the Relief Committee of the charitable funds independently of the district officers :—

	Rs.
Grants to Famine Orphanages	1,00,620
„ „ other orphanages and schools	4,370
„ in aid of charitable Institutions	26,550
„ for medical comforts, to Hospital	7,500
„ „ clothing throughout the province	91,986
„ „ relief, Bangalor Municipality	2,04,409
„ „ „ Bangalor District	1,96,000
„ „ „ Kolar	1,53,500
„ „ „ Tumkur	3,84,000
„ „ „ Chitaldrug	2,12,700
„ „ „ Shimoga	28,500
„ „ „ Kadur	39,500
„ „ „ Hassan	1,35,000
„ „ „ Maisur	68,500
Charges for establishment	765
TOTAL	16,53,900

The following table needs no remark :—

	IMPORT OF GRAIN, IN TONS, INTO BANGALOR.		LBS. OF GRAIN IN BANGALOR, PER RUPEE.	
	Monthly total.	Daily average.	Common rice.	Ragi.
September, 4 weeks, 1877	17,093	610	10¼	12¼
October ... 4 „ „	11,876	424	14	17½
November, 5 „ „	17,189	491	14¼	18¾
December, 4 „ „	4,267	152	15¾	21
January ... 4 „ 1878	5,719	204	14¼	20¼
February, 4 „ „	5,902	211	13¾	20¼
March ... 5 „ „	8,848	253	13	19¼
April ... 4 „ „	4,035	144	14	21¼
May ... 5 „ „	5,473	156	15¼	22¼
June ... 4 „ „	3,806	136	14	19½
July .. 4 „ „	5,179	185	13¼	18

Mr. Elliott left the province in May 1878. At the end of August 1878, there were 7,000 people in the special and weak gangs, besides 2,500 in the hospitals.

The income of the State is derived from "Land Revenue" and "Other Items,"—the latter being composed of the receipts from excise, taxes on the non-agricultural population, stamps, &c.

	LAND REVENUE, IN LAKHS OF RUPEES.		
	At ordinary rates.	Actual demand.	Actual collections.
1876-77	73¼	64	50¾
1877-78	73¾	55	43
	147	119	93¾
Arrears at beginning of 1876-77	14¾	14¾	
Total demand	161¾	133¾	
Total arrears at close of 1877-78	...	...	40

Of these arrears, 20 lakhs had been collected at the end of June, and in all probability most of the remaining 20 lakhs will be collected when the next harvest is reaped. If this be the case, the loss to the State in land revenue for the two years 1876—78 will be the difference between the demand at ordinary rates (147 lakhs) and the actual demand (119 lakhs), or 28 lakhs of rupees.

Revenue from "Other Items," in lakhs of rupees—

	At ordinary rates.	Actual demand.	Actual collections.
1875-76	36	36	34¼
1876-77	36	33	31¾
1877-78	36	32	26
	108	101	92
Arrears at the close of 1877-78 .	...	...	9

Of these 9 lakhs of arrears, 6¾ had been collected by the end of June 1878, and it may be presumed that most of the rest will be got in. If so, the loss to the State is the difference between 108 and 101 lakhs, or 7 lakhs, which, added to the 28 lakhs of land revenue, makes a total decrease in the income of the State of 35 lakhs of rupees.

The details of famine expenditure have been—

	Rs.
Relief works under officers of the Public Works Department . .	19,00,000
Do. under Civil officers	10,50,000
Total . . .	29,50,000
Relief kitchens and camps	31,25,000
Establishments	3,50,000
Batta to minor officers and compensation to troops for dearness of provisions	5,75,000
Miscellaneous	50,000
Jails	4,25,000
Total expenditure from April 1876 to July 1878	74,75,000
Total loss of revenue	35,00,000
Final grand total loss . . .	1,09,75,000

Of this expenditure, for the part which relates to gratuitous feeding, increased or special establishments, and compensation for high prices, the State gets no return. The 10½ lakhs expended on civil relief works have not been entirely valueless; the 19 lakhs on works by the Department Public Works have to some extent served to enrich the province with valuable improvements; they do not represent as much work as can usually be done for the money. The value is 40 per cent. of the expenditure.[1] At this rate, the 19 lakhs on relief labour have left 7½ lakhs of useful work; and therefore, the loss due to the famine may be set down at 102¾ lakhs, or a million sterling.

The loss of the people consisted of produce, bullocks, and human lives. The area ordinarily cultivated may be taken at five millions of acres, 4,200,000 dry and 800,000 wet, and the population at five millions.

Supposing this, the account stands for an ordinary year thus :—

	Khandis.		Tons.	
Outturn,[2] average year . . .	...	10,800,000	...	1,543,000
Deduct Consumption[3] . . .	7,500,000	...	1,071,000	...
„ Seed-grain[4] . . .	450,000	...	64,000	...
„ Wastage (5 per cent. of the whole)	500,000	...	71,000	...
Total expenditure of grain . .	...	8,450,000	...	1,207,000
Surplus grain, in an average year .	...	2,350,000	...	336,000

This annual surplus, mostly rice, at 20 seers per rupee = 1 Khandi, per 8 rupees = 1 ton per 56 rupees, is worth Rs. 1,88,00,000.

This is the account for the whole province; but we must consider the agricultural population who raise this grain produce, apart from the town population living by other means and buying the grain produce. The inhabitants of all the towns over 5,000 amount to 350,000, and it seems probable that nine-tenths of the people (4½ out of 5 millions) live by the land. In this are included the ryots, the field labourers and the village-artizans, the weavers, carpenters, blacksmiths, &c. The consumption of this agricultural population would amount to 6,750,000 khandis, leaving the agriculturist with a grain surplus of 3,100,000 khandis, worth 248 lakhs of rupees. The total taxation of the province being 109 lakhs of rupees, we may assume

[1] Colonel Baird Smith calculated the famine-labour on the Mohan Pass Road in 1861 to be worth 25 per cent. of the amount expended.

[2] The produce per acre = 2 Khandis = 8 maunds = 640 lbs. for dry land.
„ „ = 3 „ = 12 „ = 960 lbs. „ wet „

[3] The consumption = 1⅓ lbs. per head per diem becomes for an average family = 480 lbs. = 6 maunds = 1½ khandis per head per annum.

[4] Seed-grain per acre = $\frac{1}{20}$ khandi = $\frac{4}{20}$ maunds = 16 lbs. for dry land.
„ „ = $\frac{5}{16}$ „ = $\frac{20}{16}$ „ = 100 lbs. „ wet „

that 100 lakhs of rupees are borne by the agriculturists. The ryot sells 100 lakhs worth of grain to pay his taxes, and the balance (148 lakhs) forms the annual profits of his agriculture.

In 1875-76, the dry area was 4,050,000 acres; the wet, 750,000. Over the whole province the dry crop was less by a third, and the rice crop by a half. The outturn would therefore be 5,400,000 khandis of dry grain and 1,100,000 of wet,—6,500,000 in all, instead of 10,800,000. On the whole, the outturn and the consumption of the year must have balanced each other as regards the entire province.

	Khandis.		Tons.	
Outturn of 1875-76	...	6,500,000	...	929,000
Deduct Consumption	5,800,000	...	829,000	...
„ Seed-grain	4,00,000	...	57,000	...
„ Wastage	3,00,000	...	43,000	...
Total expenditure of grain	...	6,500 000	...	929,000
Surplus grain	...	...	...	...

The agriculturists consumed 5220,000 khandis, and sold 5,80,000 to the townspeople for 58 or 60 lakhs of rupees. But they paid 100 lakhs in taxes, as usual, and to do so must have opened their grain-pits and hoards of cash.

In 1876-77, the cultivated area was not much reduced below that of the preceding year. The total outturn was one-third of an ordinary year, or 3,600,000 khandis, of which there were 3,000,000 khandis of dry grain and 600,000 of wet. By the middle of the year the consumption per head was brought to a minimum, 1 fb. per head per diem, or 1 khandi per year. For the whole year 1¼ khandis a head is a fair estimate. Emigration began in November 1876, and mortality in January 1877. The population of the year may be taken as 4,800,000, and its consumption at 5,400,000 khandis.

	Khandis.		Tons.	
Outturn of 1876-77	...	3,600,000	...	514,000
Deduct Consumption	5,400,000	...	771,000	...
Wastage	180,000	...	26,000	...
Seed-grain	400,000	...	57,000	...
Total expenditure of grain	...	5,980,000	...	854,000
Deficit grain	...	2,380,000	...	340,000

The deficit grain, at 10 sírs per rupee =1 khandi per Rs. 16, is worth 380 lakhs of rupees, or 3¾ millions sterling. It cannot be assumed that the agricultural population sold anything to the townspeople, for they did not raise enough to feed themselves. They consumed 48¼ lakhs of khandis, and their deficit was 1,830,000 khandis, worth 293 lakhs of rupees. They also paid about 75 lakhs in taxes by selling ornaments and parting with hoards.

In 1877-78 in the most affected tracts there were 2,035,000 cultivated acres, of which the produce was 2,785,000 khandis. In the rest of the province the production was more abundant, but the outturn can hardly be put higher than that of 1875-76, or ⅛ of a khandi per acre. The wet outturn was a full average. This gives, as the production of the year, 3,000,000 khandis of dry crop and 2,200,000 of rice, total 5,200,000 khandis, or nearly half an average crop. The population at the beginning of the year was 4,800,000; at the end, 3,750,000. Take 4,300,000 as the average, and the consumption (below a minimum) at 4,300,000 khandis:—

	Khandis.		Tons.	
Outturn of 1877-78	...	5,200,000	...	743,000
Deduct Consumption	4,300,000	...	614,000	...
Wastage	250,000	...	36,000	...
Seed-grain	400,000	...	57,000	...
Total expenditure of grain	...	4,950,000	...	707,000
Surplus grain	...	250,000	...	35,700

This surplus, at 7 sírs per rupee, =1 khandi per 24 rupees, is worth 60 lakhs of rupees. Supposing the agricultural population to have sold one-tenth of the quantity required for consumption, to the townspeople, or 430,000 khandis, they received 103 lakhs for it, so that in this year they made enough to pay their taxes and to keep a little grain in reserve.

The following table comprehends the preceding statements :—

		Year.				Total of three famine years.
		Average.*	1875-76.	1876-77.	1877-78.	
Outturn	Khandis	108	65	36·	52·	153·
Consumption	„	75	58	54·	43·	155·
Seed-grain	„	4⅓	4	4·	4·	12·
Wastage	„	5⅓	3	1·8	2·5	7·3
Total deduction	„	84⅓	65	59·8	49·5	174·3
Surplus to the Province	„	23	...	...	2·5	...
Deficit to the Province	„	...	...	—23·8	...	—21·3
Surplus or deficit with the Agriculturist	„	31	6	—18·3	6·8	—6·
Value of surplus or deficit with the Agriculturist	Lakhs	+248	+60	—293·	+163·	—70·
Taxes paid by Agricu turist	„	100	100	75·	65·	240·
Surplus or deficit with the Agriculturist	„	+148	—40	—368·	+98·	—310·

* In these columns, the five naughts to the right of the figures have been omitted: thus 108 signifies 10,800,000.

The whole province would in these three years, had they been ordinary seasons, have laid by 70½ lakhs of khandis, or a million tons of food-grain, worth (at 1 khandi per 8 rupees) 564 lakhs of rupees; instead of this, it produced 21·3 lakhs of khandis (300,000 tons) less than the minimum quantity required for consumption, seed-grain, &c. This quantity it obtained by importation. The quantity of railway-borne grain imported into Bangalor between November 1876 and July 1878 amounted to 237,000 tons, and the quantity cart-carried from the Western Coast must have made up the difference between this and 300,000 tons. For this grain the province had to pay at the rate of one rupee per 6 to 10 sírs, or Rs. 20 per khandi, or Rs. 140 per ton; total, 420 lakhs of rupees, or 4½ millions sterling. In place of a profit of 5½ millions, a loss of 4½ millions. The cost of the famine to the province, in the actual purchase of necessary food and in the loss of ordinary profits, was 9¾ millions sterling. Against this, is the famine relief expenditure, by which 70 lakhs of rupees were thrown into the country either as food or as payment for labour for which no other market existed. This reduces the losses of the people to 9 millions sterling. But the reduction is apparent only, since the amount will in the end have to come out of the pockets of the people of the province.

The agriculturists usually expect, after meeting the cost of taxes of cultivation and of the necessaries of life, to net 148 lakhs of rupees; in three years this would amount to 444 lakhs of rupees, or 4½ millions sterling. Instead of this, after reducing expenditure and their rations till they died in crowds, they lost 310 lakhs, and were 40 lakhs of rupees in arrear with their revenue. Thus, of the total loss of 9¾ millions, 8 millions were the share of the agriculturists.

This was not the whole of their loss. The mortality among their stock must be considered. In 1874-75 the stock was:—

Cows and bullocks	2,900,000
Sheep and goats	2,200,000

The annual mortality among animals of all kinds is registered at 150,000; of these, 75,000 are bullocks, 55,000 are sheep or goats,[1] the rest are buffaloes, donkeys, pigs, &c. In 1876-77 the mortality was three times its usual amount, or 450,000, and from April to September 1877, it was eight times, or 280,000. Assuming the ratio of mortality among the different kinds of animals to have remained constant, 365,000 bullocks died in 1½ years, from April 1876 to September 1877, against an ordinary number of 112,000, or 253,000 in excess. The average price per head is Rs. 5 or Rs. 8, and the total loss to the agriculturists is between 12½ and 20 lakhs—probably 15 lakhs of rupees.

Through the combined effects of increased deaths, diminished births, and emigration, the population of the province was reduced in January 1878 by 1¼ millions of people. Neither was the excessive mortality then at an end, nor will the birth-rate for many months recover. For a few years the revenue of the province will suffer to a slight extent, in the diminished house-tax and the shrunken area of cultivation; in all probability the outturn of food-grain will be greater per head of population for the next thirty years than it has been of late, and thus the survivors will reap some benefit from the great sufferings.

The fact remains that the famine has cost the province 9¾ millions sterling in produce, ¼ of a million in cattle, and a million in human lives. In return, it has some dearly-bought experience, a larger ratio of cultivated land per head of population, and 7½ lakhs worth of useful work on the State Railway, roads, and tanks.

Looking solely from the point of view that life must be saved, the Bengal Famine of 1874 offers the best instance of the administration of relief; it may be well to examine what measures would have been adopted and what results produced if the example of Bengal had been followed. Take the district in Bengal which suffered most,—Darbhanga. It has a population of 2,196,300, say 2,200,000, souls; its average annual outturn of food-grain is 882,000 tons, and the outturn of 1873-74 was 267,000 tons, or 30 per cent. The ordinary annual food-consumption of the district is 550,000 tons. Assuming that this might in famine years be reduced

[1] This gives an average duration of life of 40 years to each animal.

to 1 lb. a day, the minimum quantity required for consumption would be 360,000 tons, so that there was a deficit of 100,000 tons of food, to be supplied from old stocks and from importation

The relief measures adopted in Darbhanga were,—gratuitous relief given in villages; relief works opened; money advanced to land-owners and labour-employers; grain advanced to cultivators; grain imported by Government and sold. In Bengal, the severity of pressure lasted five months, from April to August 1874; in Maisur, 11 months, from December to October 1877. The relief in Darbhanga may be tabulated:—

	Average number for five worst months: April to August 1874.	Cost.	Grain.
		Rs.	Tons.
Relieved gratuitously	144,944	1,73,250	14,351
On relief works	305,025	31,88,829	10,769
By loan of money*.	11,725	1,17,250	......
„ of grain†	216,712	......	14,512
TOTAL . .	678,406	34,79,329	39,632

* It is assumed that every Rs. 10 lent supported one person for five months.
† „ „ 150 lbs. lent fed „ „

Assuming that the grain cost 10 sírs per rupee (it really cost much more), the 39,623 tons of food cost Rs. 44,38,784, and the total expenditure on relief was Rs. 79,18,113, or say 79 lakhs of rupees. At this cost, one-third of the population of the district was fed for five months. Those on gratuitous relief cost the State Rs. 12½; those on relief works, Rs. 14⅝; those aided by loans in cash, Rs. 10; those aided by loans in grain, Rs. 7½ each.

If the same ratio of the entire population in Maisur had been in receipt of relief, the average number would have been 1,541,830 people, not for five, but for eleven months. The average cost of each person on relief in Darbhanga was Rs. 11-10-9; if the relief had been prolonged for eleven months, it would have been Rs. 25-11: thus the total expenditure, at the Bengal rate per head, would have been Rs. 3,96,05,758,—nearly 4 millions sterling. Although grain cost 6 sírs per rupee in Maisur, and 10 sírs per rupee in Darbhanga, the Darbhanga rate per head would probably have given sufficient relief, since it afforded more than a bare subsistence. The cost of establishments on the Bengal circle system—a superior officer to every hundred villages, and a subordinate to every ten—would have come to another million, making an expenditure of 5 millions sterling in all. The average number of persons relieved for eleven months was 146,882, or $\frac{1}{11}$ of the Darbhanga ratio; and the actual expenditure was 70 lakhs.

The figures for December, January, and February are approximations.

Province of Maisur.	Gratuitous.	Civil relief.	Public Works Department works.	TOTAL NUMBERS.
December 1876 . .	15,000	15,000	20,000	50,000
January 1877 . .	20,000	20,870	20,000	60,870
February „ . .	25,000	37,830	28,780	91,610
March „ . .	43,600	41,730	30,950	116,280
April „ . .	69,570	29,730	31,500	130,800
May „ . .	103,400	30,010	32,500	165,910
June „ . .	114,100	28,060	26,800	168,960
July „ . .	145,000	26,300	20,750	192,050
August „ . .	199,300	26,000	22,600	247,900
September 1877 . .	179,490	29,970	25,800	235,260
October „ . .	81,870	30,200	44,000	156,070
TOTAL NUMBERS .	996,330	315,700	303,680	1,615,710
Average numbers for 11 months . .	90,575	28,700	27,607	146,882

Mr. Elliott thinks that if the relief measures had been carried out on the Bengal system, and five millions sterling had been spent, half a million of lives would have been saved.

Whether life is worth saving at this cost; where the lines should be drawn; how far it is right to be lavish; where frugality should prevail over humanity: these are the grave questions presented to the Government of India. That Maisur ought to have spent more, will be admitted by most. That the Bengal expenditure was too lavish to be repeated, is probably the conclusion of the Government.

The Maisur Famine Code, dated 2nd October 1877: compiled by Mr. C. A. ELLIOTT, C.S., *Famine Commissioner.*[1]

(Condensed $\frac{1}{5}$.)

1

PREFACE.

1.—The backbone of the famine policy is the employment of all suitable applicants for relief on large works of permanent utility, superintended by the Public Works Department.

[1] In paragraph 8 of its Despatch No. 39, of 30th October 1877, to the Secretary of State, the Government of India called this Report "an excellent compendium of instructions; many of its provisions, founded on the orders of the Government of India, will be found applicable to famine-relief administration elsewhere."

It is the duty of the civil officer to decide who are suitable applicants, who are able-bodied for labour. It is not intended, until a crop is harvested, that any applicant should be rejected on the ground of being too well-to-do, provided he submits to the three tests:—

(*a*.) The distance test—showing his willingness to labour at a distance from his home, not returning there at night, but being hutted on the work.

(*b*.) The wage test—that he receives a wage calculated to provide a bare subsistence for himself, but not enough to support any non-working member of the family.

(*c*.) The task-work test—that he performs a daily task proportioned to his strength.

While it is desirable to secure the best return in work for the expenditure incurred, the main object of carrying out a relief work is not for the work, but for the labourers on the work.

On every large public work there will be placed a civil officer to co-operate with the public works officer, and a medical officer to take charge of the sick and those requiring special treatment. There will be three classes of labourers:—

Class I.: the moderately able-bodied, who can perform 75 per cent. of the task accomplished by an ordinary cooly.—Some members of this class will be fully able-bodied; some, though strong themselves, may have a sickly wife or child; some may be reduced by privation below their usual strength. But the class, taken as a whole, counting the stronger with the weaker members, should be able to perform the 75 per cent. condition, and should receive the higher (A) scale of wages,—vide Appendix 1.

Class II.: those who are weakly, but able to work, and can perform 50 per cent. of their ordinary task.—This class will consist of the old, infirm, partially disabled by natural defect, or temporarily enfeebled by famine, but whom regular pay may be expected to restore. These should receive the lower (B) scale of wages.

Class III.: those too much emaciated to do any but a light task, who under care may improve, and whose health and self-respect will be consulted by employing them in easy open-air work. These are the class under special treatment, and will receive the A. scale of wage, in the hope of fitting them to be drafted among the able-bodied, in addition to any extra nourishment the medical or the relief officer may prescribe. Old and decrepid persons who cannot be expected to improve in strength are not to be included in this class.

The civil officer will classify the applicants as they arrive according to these three classes, and will, as they improve or retrograde, suggest their transfer from one class to another. The medical officer will see to the special treatment of all who require extra food and nourishment, and for whom the ordinary wage is not sufficient. The Department Public Works officer will receive the gangs and individuals, set them to work, register them, measure the work they do, and see to their payment and hutting. Accordingly, the code treats, in separate sections—

(1.) Of the duties of the professional officer of the Public Works Department.

(2.) Of those of the civil officer.

(3.) Of those of the medical officer.

2.—Civil relief works are supplementary to Public Works Department relief works, and may be employed in three ways:—

(1) As a safety-valve for labour when there are more applicants than the Public Works Department can receive.

(2) As a training school for Public Works Department work, when it is desired to move bodies of men to considerable distances, and they are broken into this by being organised and accustomed to work together in gangs for a short time near their homes.

(3) To give employment to the old and decrepid, who do not come up to Class II, cannot do half an ordinary day's work, and will not be restored to strength by liberal treatment.

The petty relief works, being paid by piece-work or by contract, and under no real supervision, are to be discontinued. No work will be undertaken as a civil relief work, not affording employment for at least 300 people for one month. They will be hutted on the work, and not (save in the second case referred to) allowed to go to their homes at night. Each work will be supervised by a civil officer. The second chapter of the code expounds the duties of the civil officer as to civil relief works.

3. The third main division of famine policy is the relief-camp. These camps are not to be used as dining-places, where people come for a meal or two meals a day and go away. Every one who receives relief at a relief-camp must submit to two conditions:—

(1.) Residence in the camp.

(2.) Work.

The camp must be enclosed, and provided with sufficient shed accommodation. The able-bodied should not be received there, but sent at once to work. The weakly applicant should generally be sent to a relief work; but may sometimes be detained a few days, to be fed up. The ordinary population should consist of the old and infirm likely to improve, and of the sick in hospital. For all these, except the sick, such work as they are capable of should be provided.

4. The Chief Commissioner's Proceedings, Famine Department, No. 5, dated 11th September (*vide* Appendix I.), prescribe the ordinary wages on Public Works Department and civil relief works, and the ordinary ration in relief camps. But there are many cases to which the ordinary rates will not apply. Emaciated children, nursing mothers, themselves or their babies suffering from innutrition, young and middle-aged adults of both sexes brought down by starvation, women in pregnancy, convalescents of the hospitals,—these form the chief classes of "special cases" who require "special treatment." No part of the relief officer's duty (Public Works Department, civil, or medical) is more important than the selection of cases for special treatment and seeing that the orders he gives are carried out.

5. Village inspection and relief is especially the duty of the civil officers of the district, and unless it is zealously performed, it is impossible for them to find out the condition of the people of their district, or to know if there are people in the villages needing relief, but too proud, or frightened, or resigned to their fate, to apply for it.

It may happen that an officer may inspect a village once a week for three weeks running, turn out the inhabitants, and find them all looking stout and comfortable, and on the fourth week

see that distress and emaciation have set in. He will act by sending the people to relief works or relief camps, and by seeing that they go; without this inspection he may be startled by suddenly finding an influx of famine-stricken people coming too late to be saved.

Special relief for artisans unfitted for manual labour is provided by supplying them with raw material: for this purpose it is necessary to provide for house-to-house inspection of all towns.

Finally, every officer in connexion with relief operations is held personally responsible that measures adequate to the distress are used; that unusual or impending distress is early brought to notice; that no question of form is allowed to impede relief; and that all orders are carried out.

Relief must never be allowed to run short as long as it is necessary; foresight must be exercised, and one work planned as fast as another draws near completion, or there are indications of an influx of labour. A list of works ready to be undertaken should be drawn up for each district, so as to be available whenever there is a demand for work. No officer will be excused for turning off relief labourers on the completion of a work, or for refusing *bonâ fide* applicants for labour, by the plea that he had not received a sanction.

CHAPTER I.:

Section I.—Duties of the Department Public Works Officer.

The officer placed by the Chief Engineer in charge of a relief work will, after completing his preparations, give information to the Deputy Commissioner of the district that on a certain day he will be prepared to receive a certain number of labourers.

2.—He will divide the work so as to locate in separate parts of it the gangs of the different classes:—

(*a*) Able-bodied;
(*b*) Weakly, but fit for labour;
(*c*) Special treatment.

3.—When the labourers arrive (classified by the civil officer according to the three classes), he will distribute them into gangs, allowing those of neighbouring villages and those of the same caste to work together. Each gang will consist of about 50 people under one gangsman—men, women, and children being associated in proportion; about four to six gangs will be under one writer, who will keep the nominal register.

4.—Nominal registers of labourers, showing the name, caste, village, and date of employment, will be framed. The roll will be called daily, and those absent for part of the day will receive half a day's pay; if absent the whole day, no pay.

5.—Instructions have been issued (*vide* Appendix No. II.) as to the kind of hut which should be put up to contain one family. The earthen walls and raised floor should be the labourer's task; the mats for the roof are supplied by the Department Public Works officer, Huts to accommodate 10 per cent. of the numbers expected may be erected before the arrival of the relief labourers; but this need not be done if there is any available accommodation on the spot. As to the selection of the site of the camp, and the general rules which should guide its laying out, the instructions of the Sanitary Commissioner, Bombay, (Appendix No. III.) should be followed.

6.—The first day or two will be occupied in hutting the labourers, and full wages (scale A for Classes *a* and *c*, scale B for Class *b*) should be given. When the labourers are set to work, task-work should be exacted, *not individually, but by the gang*, the work of each gang being measured up once or twice a week. Task-work must not, however, be exacted rigidly during the first few days, especially from those who are feeble. The able-bodied in Class *a* are expected to do 75 per cent. of the work done at ordinary times by an able-bodied cooly; if they do less, they should be cut down to the lower wage (scale B). Those of Class *b* should perform 50 per cent. of the full task which they could ordinarily perform; but if they do less, the wage (calculated at the minimum for supporting life for seven days by six days' labour) should not be retrenched unless the Department Public Works officer is satisfied that the failure is willful, and not due to weakness. He should exercise great discretion, should warn the people two or three times; if that fails, he may deduct the condiment portion of the wage. But this penalty should not be repeated without consulting the civil officer, lest the labourers should fall off in condition. From class (*c*), under special treatment, no task can be demanded. The amount exacted in each kind of labour should be reported by the Public Works Department officer to the superintending engineer, who will see that the rates are fair and not excessive. Neither work nor wages will be given on Sunday, the rate for working days being calculated to leave a margin for Sundays.

7.—It will be necessary at first to pay the labourers daily, and after a time twice or thrice a week; but weekly payments should be the rule for the able-bodied gangs (Class I.), and introduced as soon as possible without inconvenience and loss to the labourers. When the work has been going on for a time, and the grain-merchants, acquiring confidence, know that a labourer whose name is on the roll is sure to be paid, they will give him credit during the week. But facilities must be given for any labourer's departure from the work at any time for his home, provided there is reasonable presumption that he can support himself when he gets there. He must be paid and let go, even in the middle of a week. All payments must be made in cash; no cooked (or raw) food is to be given, except to the people under special treatment. Payments will be made on nominal registers, checked expeditiously, to avoid delay in making the week's payment. They must not be made through low-paid underlings, but by

cashiers borne upon the establishment, from whom good security should be required. Officers in charge will be expected to check payments, and inspecting officers (civil or Department Public Works) must endeavour to ascertain that the full Government wage reaches the cooly, less duly-authorized retrenchments. When required by the civil officer, arrangement should be made for paying new arrivals an interim payment after one or two days' work.

8.—Shelter should be erected, in which infants and children, too young to labour, of the people in the gangs may be collected. About 20 children may be placed under the care of a woman, herself a nursing mother, or through age or infirmity entitled to consideration. The shelter should be at such a distance that the children of mothers in the gangs should not interfere with the work, but be within easy access of their mothers. Any of the children who are weakly will be treated as special cases.

9.—The Department Public Works officer will weekly send to the Deputy Commissioner of the district, for circulation, the following information:—

Name of work.	Number employed on the of .	Additional number to whom employment can be given on or after the of .

10.—When a sanction is about to expire, or when a relief work is about to be completed, the Department Public Works officer should make report to his superior, to enable him to pass necessary orders; and should inform the Deputy Commissioner.

11.—Where a civil officer cannot be spared on the relief work, the duties which belong to him will devolve on the Department Public Works officer, and especially those defined in Rules 4, 5, 6, 7, 8, and 9, section II. Every officer in charge of a relief work will be held responsible for the condition of his people, and for the prompt carrying out of all orders.

12.—The outbreak of any epidemic disease (cholera) should be immediately reported to the civil officer, or to the Deputy Commissioner of the district, and to the Chief Engineer.

13.—Every officer in charge of a relief work will make a weekly report in the form appended (Appendix No. IV.). The condition and health of the labourers should be noticed, and the cause of any increase or decrease in numbers explained.

Section II.—Duties of the Civil Relief Officer.[1]

1.—The Deputy Commissioner, on receiving information from the executive engineer or other Department Public Works officer of the number of relief labourers who can be entertained at a given place on a given date, will decide from what taluk they are to be sent; will instruct the relief officers of the taluks; and appoint a civil officer to co-operate with the Department Public Works officer on the relief works.

2.—The civil relief-officer in charge of a taluk, on hearing how many people he is expected to send to a relief work, will select the number from the relief camps in his taluk; will be careful not to draft to relief work those too emaciated to do work, or to benefit in health by the move. When the gangs drafted are large, and the people have been accustomed to gratuitous relief, there will be unwillingness to move, and timidity. This must be overcome by tact. The relief officer should himself march the earliest gangs to the relief work, to prevent any desertion by the way, or send them in the charge of a trusty superior official, such as the amildar. When the system is well established, and the people have confidence in the work and crowd to it, it will be sufficient to place the party under the charge of a gangsman or constable, and to send with him a paper showing the number of persons of the 1st class, of the 2nd, of the 3rd, despatched on a certain day, to reach the relief work on a certain day. The relief officer will distinguish the individuals by giving to those ranking in Class 1 a paper ticket A, to those of Class 2 a ticket B, and Class 3 a ticket C. These are on arrival to be delivered to the Department Public Works officer.

3.—Batta will be given to the relief-labourers according to the distance travelled. If not more than one day's march, give them a meal in the morning before starting and a meal in the evening after arriving. If more than one day, halt them for the night at a relief camp, having an order on it for food, or else at a police station, or a village, the patel of which is trustworthy, where the police officer or patel would on the relief officer's order provide the party with food. The allowance should not exceed 16 oz. of grain (raw or cooked) per diem. Money should not be given to the relief labourers till they arrive.

4.—The civil officer on the relief-work should receive these labourers, and make them over to the Department Public Works officer. After the first start, applicants for labour on the work should apply direct to the civil officer, who should establish a fixed place at which to receive all applicants every morning, to classify and to distribute them.

5.—In all cases the "distance-test" should be enforced—tentatively and cautiously at first; more strictly afterwards. People should never be sent to work close to their homes. The Deputy Commissioner should enforce this test by the direction he gives as to what taluks

[1] The term "civil relief-officer" is applied to a Deputy or Assistant Commissioner or a Special Relief Officer; not to an Amdar.

should supply work. The labourers from a relief camp in one taluk should not be sent to a relief work in that taluk, but elsewhere; but the rule should be introduced gradually, the people being employed at first a little distance off; then, when they are organized and accustomed to work in gangs, and have got to know each other and the gangsman, and to have confidence in the system, they can be marched to greater distances. When applicants come to the civil officer on a relief work, if the work is one stretching over miles, he will send them to that part farthest from their homes.

6.—The civil officer may refuse to send to work people obviously unfit for relief, wearing gold ornaments, rich clothes, &c.; but he is not authorised to refuse employment to any who apply, merely because they are fat and in good condition. The enforcement of the three conditions—

(1) the distance-test,
(2) „ wage test,
(3) „ labour test,

are sufficient to prevent work from becoming too popular.

7.—The civil officer should move daily up and down the work, and inspect the gangs; if he sees any falling off or any improving, he should suggest to the Public Works Department officer their removal from one class to another; should see that there is a bazar at which food can be got at reasonable prices; should supply the Public Works Department officer with a statement of the price of grain at the end of each week, in order that the rate of daily wage for the next week may be found; should inspect the payment of the gangs and see that there is no peculation and no unlicensed deduction from their wages; should carefully watch the carrying out of orders as to relief to infants, to nursing mothers, and to the sick and emaciated.

8.—Every civil officer in charge of a relief work will receive a permanent advance of Rs. 100, to enable him to give food or money to applicants the first day they arrive on the works, and to meet any exceptional expenditure. He will send in to the Deputy Commissioner on every Monday, an account of his expenditure under this head for the previous week, and also a weekly report on all points of importance.

9.—Relief labourers should be encouraged to bring their whole families with them to the works, and relations of labourers arriving subsequently should always be taken, if fit for labour. Attention to this point is particularly necessary when any deterioration of the labourer's physique becomes apparent, and inquiry will probably show that he has been endeavouring to support members of his family on a wage intended only for himself. Inspecting officers will be expected to watch the proportion of young children on the works, and to take steps when that proportion is improperly small.

Section III.—Duties of the Medical Officer.

1.—The Medical Department should arrange for attaching a hospital assistant to each large work. If no shelter be available for the medical officer, a tent will be provided.

2.—Hospital sheds should be erected in a convenient locality, and provided with mats, blankets, and ordinary medical comforts. A supply of common medicines should be furnished by the Medical Department. The cost of the hospitals will be charged to the works, indents being passed by the Deputy Surgeon-General, Indian Medical Department. Care should be taken to keep the hospitals dry and clean, the requisite nursing and sanitary establishment being supplied by the officer in charge of the work.

3.—The medical officer will be held responsible for proper arrangements for conservancy, latrines, surface drainage, and water-supply at the camps and hospitals: he should report his requirements to the officer in charge. Drinking-water should be guarded from contamination.

4.—The medical officer will inspect the camps every morning. No one should be allowed to live in the camps who is not upon the works.

5.—The gangs of labourers will be inspected daily, and the medical officer will point out any persons belonging to Classes 1 and 2 who require hospital or special treatment, paying particular attention to nursing mothers, young children, and weakly adults not old, decrepit, or constitutionally infirm. The inspection of Class 3 (those under special treatment) must be done carefully: separate instructions regarding this will be found in Chapter IV.

6.—The Sanitary Inspector of the district will visit the Public Works and civil relief works, and submit a report to the Additional Secretary, Famine Department, on each work.

Appendix I.

The Chief Commissioner, Maisur, in his letter No. 5, of the 11th September 1877, stated:—

The following is the scale of wages on relief works, and of food in relief camps, in the Maisur Province:—

Daily wages of	Relief-Works.			
	Public Works Department. B		Civil. A	
	Value (x) of lbs. of grain.	For condiments, in pies.	Value (x) of lbs. of grain.	For condiments, in pies.
Man	$1\frac{1}{3}$	9	$1\frac{1}{3}$	3
Woman	1	9	1	3
Child above 7 years of age	$\frac{2}{3}$	6	$\frac{2}{3}$	2
„ below „	$\frac{1}{4}$	...	$\frac{1}{4}$	...

By "grain," is meant grain of medium quality and of the description in ordinary use at the time of payment among the labourers on the works—the price to be taken at the retail price of the grain ruling at the head-quarters of the taluk on the previous week.

C.—Rates of cooked food in relief camps, for all persons except those in hospital or treated as special cases, as being too infirm to labour, or as children under 7 years of age:—

A man or woman	1 lb. of grain, plus 3 pies worth of condiments.
Child over 7 years old	½ lb. " " 2 " "

Ordinary millet (ragi) is to be taken as the staple grain. When not procurable, rice may be given; the same quantity is to be given in either case.[1] The ration for relief-camps is the quantity of *raw* ragi-flour or rice which each person is to get; and the officer in charge will be responsible that the quantity distributed is that produced from the full raw ration.

No wages will be given and no work exacted on any relief work on Sundays.

Pounds of grain per rupee.	A.—SLIDING DAILY WAGE SCALE FOR PUBLIC WORKS DEPARTMENT RELIEF WORKS.						B.—SLIDING DAILY WAGE SCALE FOR CIVIL RELIEF WORKS.					
	Man.			Woman.	Child over 7 Years.	Child under 7 years.	Man.			Woman.	Child over 7 years.	Child under 7 years.
	Cost of 1⅓ lbs.	Condiments.	Daily wage.				Cost of 1⅓ lbs.	Condiments.	Daily wage.			
	As. P.		As. P.	As. P.	As. P.	P.	As. P.		As. P.	As. P.	As. P.	P.
14	1 6	9 pies in each case.	2 3	1 11	1 3	4	1 6	3 pies in each case.	1 9	1 5	0 11	4
13½	1 7		2 4	1 11	1 3	4	1 7		1 10	1 5	0 11	4
13	1 8		2 5	2 0	1 4	4	1 8		1 11	1 6	1 0	4
12½	1 8		2 5	2 0	1 4	4	1 8		1 11	1 6	1 0	4
12	1 9		2 6	2 1	1 4	4	1 9		2 0	1 7	1 0	4
11½	1 10		2 7	2 1	1 5	4	1 10		2 1	1 7	1 1	4
11	1 11		2 8	2 2	1 5	4	1 11		2 2	1 8	1 1	4
10½	2 0		2 9	2 3	1 6	4	2 0		2 3	1 9	1 2	4
10	2 1		2 10	2 4	1 6	5	2 1		2 4	1 10	1 2	5
9½	2 2		2 11	2 5	1 7	5	2 2		2 5	1 11	1 3	5
9	2 4		3 1	2 6	1 8	5	2 4		2 7	2 0	1 4	5
8½	2 6		3 3	2 8	1 9	6	2 6		2 9	2 2	1 5	6
8	2 8		3 5	2 9	1 10	6	2 8		2 11	2 3	1 6	6
7½	2 11		3 8	2 10	1 11	6	2 11		3 2	2 4	1 7	6
7	3 1		3 10	3 0	2 0	7	3 1		3 4	2 6	1 8	7
6½	3 3		4 0	3 2	2 1	7	3 3		3 6	2 9	1 9	7
6	3 7		4 4	3 5	2 3	8	3 7		3 10	2 11	1 11	8

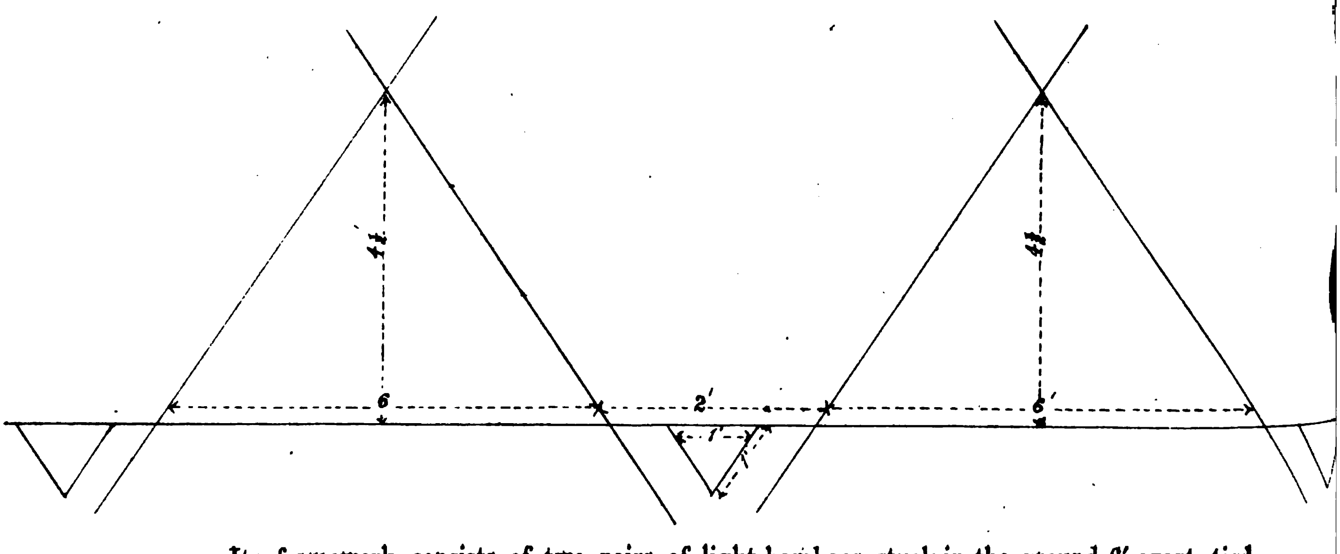
Appendix II. :

Instructions conveyed by the Chief Engineer, Maisur, in his circular No. 19, of the 17th September 1877.

The first day's work for the relief party must be hutting. The workpeople must hut themselves; all that should be supplied being materials that they cannot procure.

2.—The designs of these huts may vary. The following is suggested as a form of hut found to answer well:—

The hut has 9′ × 6′ ground area; and is 4½′ high at the ridge.



Its framework consists of two pairs of light bamboos stuck in the ground 6′ apart, tied together where they cross, and of a fifth bamboo as ridge-pole. The sides consist each of a bamboo matting 6′ × 5½′. A third matting of the same size is bent over the top. The upper portion is of double, the lower of single, matting. The latter may be tarred, or covered with earth and cowdung.

3.—If the site of the camp is soft, the flooring of the hut should be raised one foot; but if hard, not; precautions must be taken to keep the camp drained, and the huts dry. Each hut

[1] The nutritive value of ragi is greater than that of rice.—See page 133 *et sequitur.*

of this description should hold a family (man, wife, and three children), or three adults. They should be placed two feet apart, and arranged in streets 50 feet wide, with cross-streets at intervals. Between two parallel streets there would always be two rows of huts back to back, with about 15′ to 20′ between them. Each hut should cost Rs. 3. The camp should be on a good site near the work.

4.—The executive engineer is to remember that the object is twofold: to get some return for the Government money laid out on saving life, and to raise a people demoralised by pauperism and idleness, and to rally them into the ranks of working men and women. He must therefore enter into little particulars, and bestow attention on matters that in an ordinary way would never come before him.

5.—The water-supply must be carefully considered. It should be from above the camp, and wells must be sunk in convenient situations, should there be no tanks or streams available for drinking-purposes. The best form for a latrine is a trench for each sex, daily dug one foot deep, and filled in, at a distance of 500 feet to leeward of the camp, and well removed from the water-supply. It will be difficult to make the people use these trenches.

6.—Colonel Sankey's design for hospitals should be adhered to, and one built at every camp of above 500 people. Where possible, a medical subordinate will be attached to each large camp.

7.—Executive engineers should look out for suitable head coolies to take charge of gangs of 50 labourers. Over four such gangs there should be a mustering officer able to keep a nominal-roll in vernacular. Over four or five of these mustering headmen there should be a sub-overseer. In beginning any new work, the payments must for the first few days be made daily. Executive engineers must see that cashiers are present.

APPENDIX III.:

Memorandum by Dr. Hewlett, Sanitary Commissioner, on Sanitary Arrangements in Famine Districts.

As soon as it is decided to concentrate a body of labourers at a place, a site for their encampment should be selected. The points to be remembered are—

Proximity to drinking-water supply;
„ to the works where the men will be engaged;
Facilities for procuring fuel and provisions;
„ „ making field latrines;
„ „ surface drainage and provision, that the site, if epidemic disease break out, will not be a danger to villagers in the neighbourhood.

2.—The site must be in every case below, and not above, the source of drinking-water supply, to which it should not approach nearer than 300 yards. Elevated ground at a distance from nálas should be chosen. If there is a grove of trees in the neighbourhood, the encampment may be made under them. If there is only an open plain, arrangements, according to the material available, must be made to hut the people. Grass for tatties may not be procurable, but it may be possible to make open sheds with branches of trees. Tents of country blankets must be rigged up, supported (if there is no wood to make uprights) by stones. One man should give his blanket for this purpose, and his comrade should reserve his for covering both at night. They should be erected in straight lines, and care taken to prevent aggregation of great numbers together in one spot. There should be not more than 20 persons in one block, nor more than 500 in one encampment. If a greater number of encampments is necessary, they should be in the same line as each other, separated by a quarter of a mile from one another.

3.—The accompanying diagram shows how an encampment for 5,000 persons should be laid out. In the front line there are five blocks, in each of which 20 individuals are located; this number should not be exceeded. Each block is separated from the next block in the same line by 50 feet, and by 100 feet from the next line, which is not located exactly behind it, but the first hut in the second line is placed opposite the open space intervening between the two huts in the front line, and so on. The huts should face north and south. There should be also two huts, under a guard, erected on the flanks of the lines,—one for grain, the other for fuel.

4.—A raised platform, 1 foot high, consisting of stones below, well-rammed earth above, should be provided as a flooring for the huts, or blanket tents. A surface-trench should be cut along the front and rear of each row. Fireplaces should not be allowed within the lines, for fear of fire, but placed at the head of each line to leeward, at a distance of 100 feet. To economise fuel, the food for the occupants of each line should be cooked at one time.

5.—At a distance from any well or water-supply, not nearer than 300 yards, to leeward of the lines, a site should be chosen for the latrines. Whenever the soil will permit, a trench more than 6 inches deep should be dug every day; for 500 men, two trenches, each 100 feet. The men should after defœcation throw some of the excavated earth into it, but a bildar must be in attendance to cover the ordure. If the soil is rocky and will not permit the excavating of a trench, or if there is not sufficient earth, the people must be allowed to ease themselves in a selected spot to leeward of the lines and not nearer than 400 yards to it. The ordure must be collected, thrown into a pit, and covered every day with ashes from the *chulas*, or from the burning of rubbish.

6.—The medical subordinate's first care should be to place a guard over the drinking-water supply; to allow no person to go into it; to allow of no washing of vessels, persons, or animals

near it; to see that there is an efficient drain to carry away the waste-water, which should be preserved for the use of animals, not allowed to approach nearer than 200 feet of well. If it runs short, the people must be put on an allowance. "In health, an adult requires about 70 to 100 ozs. (3½ to 5 pints) of water for nutrition, but about 20 or 30 ozs. of these are contained in the bread, meat, &c., of the food, and the remainder is taken in some form of the liquid"—(Park's *Hygiene*). Oxen drink 5 gallons of water, but they should not be allowed to drink from the same source as the men. Great care must be taken to see that the ground all round the well is kept scrupulously clean. If the encampment is to be permanent, drawing-wheels with iron buckets and chains might be fixed around the well.

7.—The medical subordinate should get the men from one village hutted together in the lines, each of which should have the name of the village. He must make arrangements for serving out water, fuel, provisions, and clothing, to the occupants of each hut. Gangs of labourers must be told off to collect what fuel is obtainable, and to bring it to the hut for storage, and the medical subordinate must arrange for serving it out in quantities. Another gang should be organised for keeping every hut, its surroundings, and the lines, clean. All surface-filth must be swept up by 7 A.M. and 4 P.M. every day. The latrines should be placed in the charge of the mukkadam with a peon under him. Any person easing himself in any other than the allotted place should be summarily punished.

8.—A burial-ground must be selected half a mile to leeward of the lines, and care taken to see that there is sufficient soil to bury bodies at a depth of 6 feet.

9.—The medical subordinate should every morning go round to inspect the encampments, find out if any person has been taken ill during the night, and arrange to give medicine at once; should indent for chlorodyne, cholera-mixture with and without opium, hospital comforts, *extractum carnis* (required in large quantities), disinfectants, drugs, and surgical appliances; should have a large supply of clothing.

10.—The medical subordinate should live in the centre of his encampments, for facility of administration, and near his habitation should be the hospital, calculated to afford accommodation for 7 per cent. of the muster-roll.

11.—Should epidemic disease (cholera) break out, the patients should be treated in a temporary hospital to leeward of the lines, in which the sick man is at a distance from the latrines. The bodies of those who have died from cholera must be buried speedily in their clothes, and the earth where the patient was ill should be dug up, sprinkled with disinfecting powder, and buried. If more than three cases occur, the encampment must be abandoned, and the people made to march at right-angles to the wind to a fresh encampment prepared for them to leeward of the other encampment. They should be put to work in another place, at a distance from where other labourers are encamped.

12.—The hospital subordinate should arrange a place on the flank of the encampments for the carts that may bring in grain, &c.; carts ranged in rows, bullocks tethered in lines. Similar arrangements as to water-supply, fuel, fodder, and latrines, will be required for the cart-men and cart-animals.

13.—If any animals are to be slaughtered, a place should be selected half a mile to leeward of the encampment, and care taken to bury the offal.

APPENDIX IV.

DIVISION *Sub-division or Range Labour Report for the Week ending Saturday the of*

Taluk.	Name of work.	Number employed last week.	Average number employed this week.					Price of staple grain.	Wages.	Expenditure during week.	Total expenditure to date.	State of		General Remarks.
			Men.	Women.	Children of 7 years.		Total.					Weather.	Health.	
					Over.	Under.								

CHAPTER II.

Civil Relief Works.

CIVIL relief works are to be used—

(*a*) When the applicants for labour are numerous, and there are no relief-works under the Public Works Department to which they can be sent.

(*b*) When the relief works are distant and the applicants unaccustomed to labour, it may be advisable to employ them on civil relief works not far from home, and to march them to the relief work on their being organized.

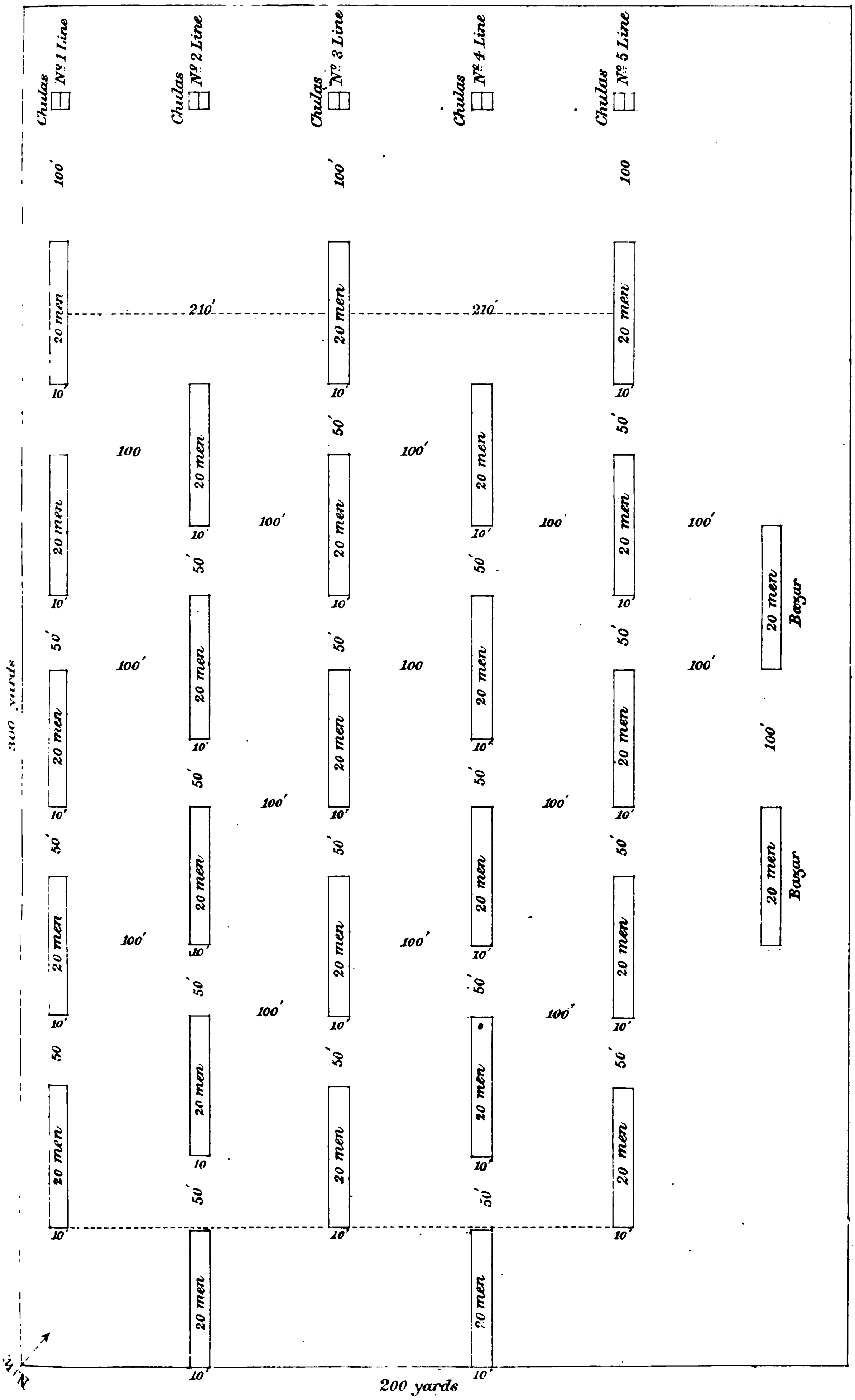
(*c*) As a means of giving light out-of-door work to the old, decrepit, and the infirm.

2.—No work is to be used as a civil relief work unless it will employ 300 people for a month. Each project of this class must receive separate sanction, a report and estimate of its cost being sent by the Deputy Commissioner, and sanction given before work is begun. But on any emergency, Deputy Commissioners have authority to open works of this kind previously sanctioned, reporting the same to the Additional Secretary, Famine Department.

ENCAMPMENT FOR RELIEF LABOURERS

proposed by

I. G. HEWLETT, Sanitary Commissioner.



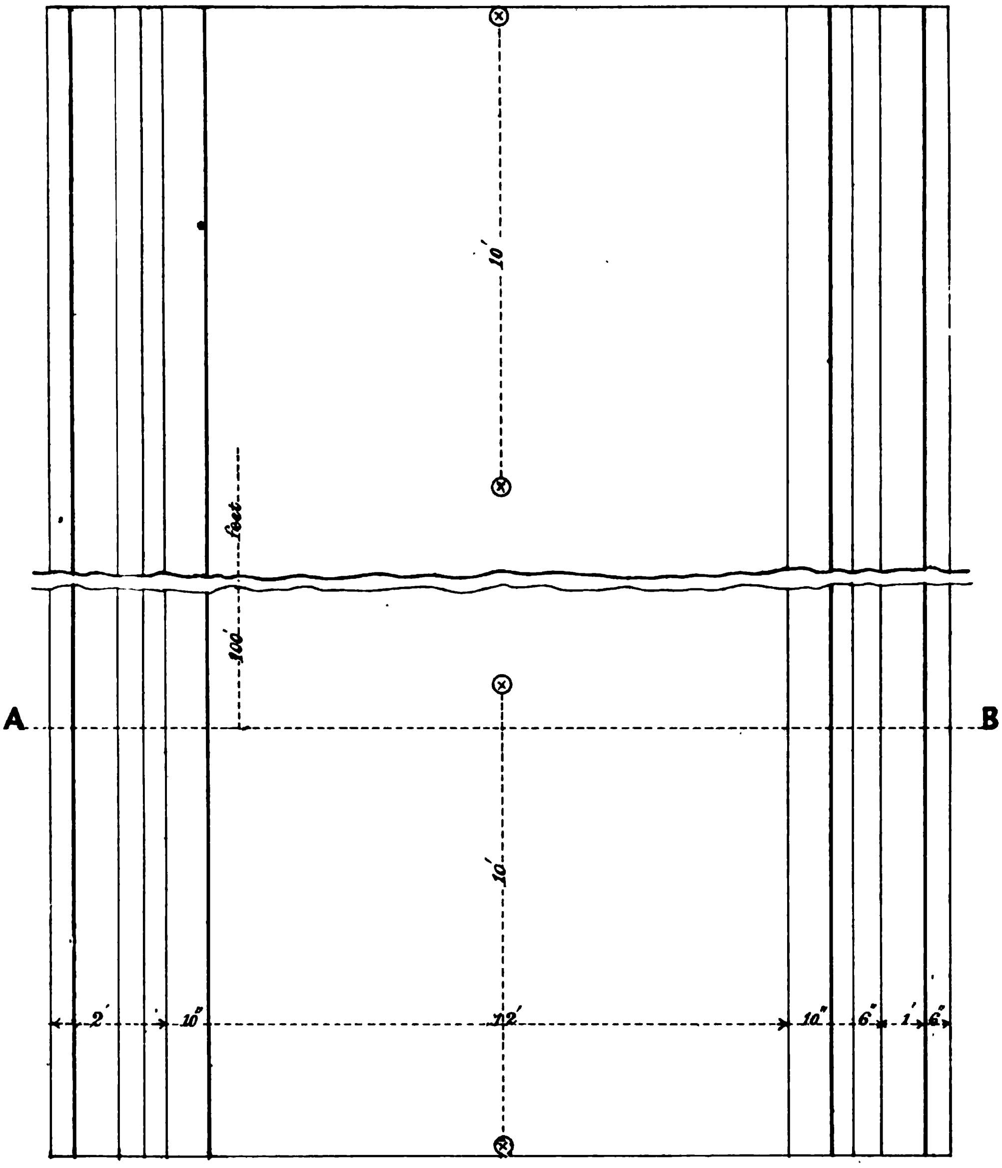
LITHOGRAPHED FROM AN ORIGINAL SUPPLIED BY THE CONSULTING ENGINEER TO THE GOVT. OF INDIA FOR GUARANTEED RAILWAYS.

at the Surveyor General's Office, Calcutta, November 1879

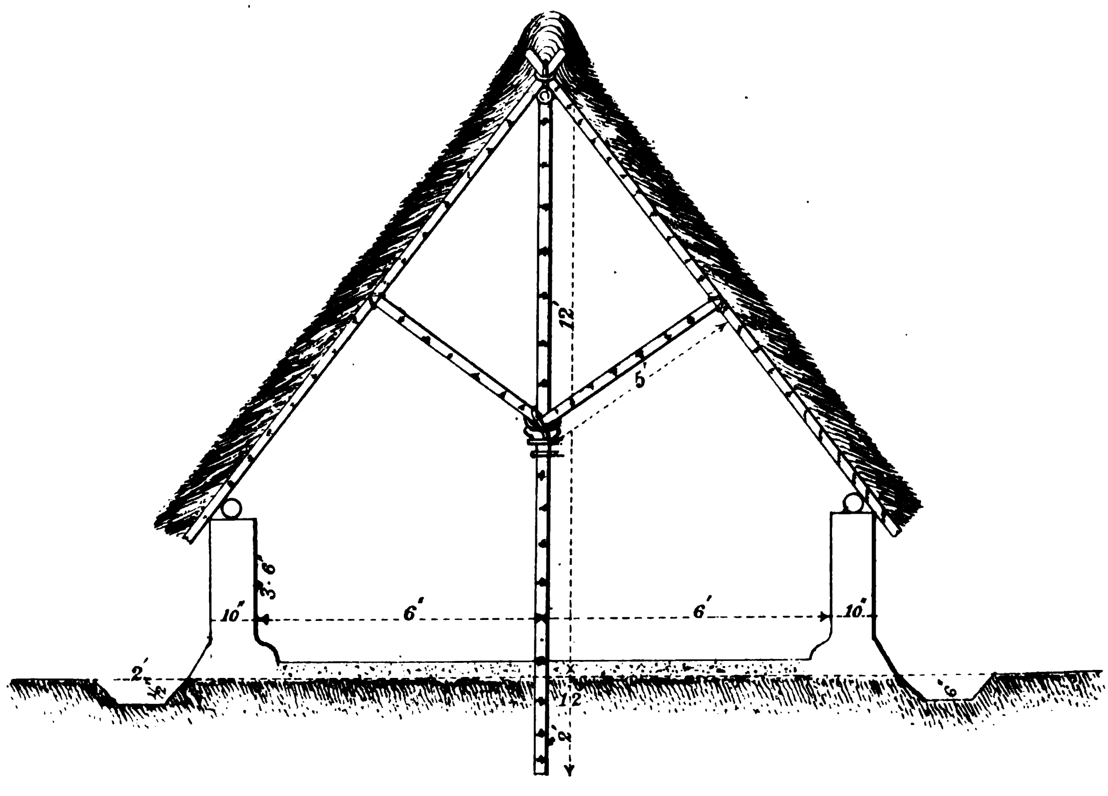
RELIEF CAMP HOSPITAL

proposed by

I. G. HEWLETT, Sanitary Commissioner.



Section on **A. B.**



LITHOGRAPHED FROM AN ORIGINAL SUPPLIED BY THE CONSULTING ENGINEER TO THE GOVT. OF INDIA FOR GUARANTEED RAILWAYS,

at the Surveyor General's Office, Calcutta, November 1879.

3.—Each work of this class must be placed under a well-paid civil officer holding a permanent appointment, not lower in rank than an inspector of police or peshkar, who will reside permanently on the spot and be responsible that the labourers are properly treated, paid, and tasked.

4.—The rules for the organization of a Public Works Department relief work apply generally to a civil relief work. There should be one register-keeper (mutsaddi) over the work, to keep a nominal roll of the labourers, divided into gangs of 40 or 50 under one head cooly (a Brahman, Lingayat, or high-caste man), hutted on the work,—the huts and camps being of the pattern directed by the chief engineer. Their rate of pay will be B scale, and paid to them twice a week, thrice a week, or daily. The civil officer will see that there is a bazar at which to procure supplies, and be responsible for their condition (Chapter I.) No medical officer will be attached to a civil relief work; but the sanitary inspector will visit the work, and the sick will be sent to the nearest hospital, generally the one attached to the taluk relief camp. Task-work to the amount of 50 per cent. of an ordinary task will be exacted from all able-bodied labourers sent to the relief work under the circumstances described [paragraph 1, clauses (*a*) and (*b*)], and the condiment portion may as a punishment be refused; but this must be done with caution and should be reported by the officer in charge to his superior relief officer. From the old and decrepit labourers (paragraph I, clause *c*) no task can be exacted.

5.—The amildar of the taluk will visit the relief work once a week. The superior relief officer in charge of the sub-division should visit it as often, and at unexpected times; should count the men and compare the number with the nominal register; should see them paid, and inquire as to complaints. Both these officials should record the results of inspection in their diaries.

6.—The rules for special treatment are applicable in their entirety to civil relief works.

7.—The officer in charge of the relief work will every Sunday frame a statement (Appendix No. V.) for the week ending the preceding Saturday, showing the number of persons and the expenditure on the work; and forward it in duplicate to the amildar, who will send one copy to the Additional Secretary, Famine Department, and one copy to his district or sub-divisional officer.

APPENDIX V.:

Report on Civil Relief Works for the Taluk of for the Week ending Saturday, the of 1877.

Name of work.	Total amount sanctioned for work.	Amount expended to date of last report.	Labourers employed during week. Men.	Women.	Children above 7 years.	Rate of daily payment.			Price of grain, on which wage is calculated.	Total expenditure on labour.	Establishment on work. Nature of office.	Rate of pay.	Cost.	Materials bought and employed. Description of materials.	Cost.	Number of children under 7 years.	Number of women taking care of them.	Expenditure on children and women, in columns 15 and 16.	Total expenditure during the week.	Name of officer in direct local charge.	Remarks.
							A.	P.													
						Men ... Women, Children					Writers, Accountants, &c. ...										

Averages will be struck in the Secretariat Office.

CHAPTER III.:

Relief Camps.

THE relief camp is to provide temporarily for those able to work; and permanently (as long as necessary) for those sick and unable through old age and infirmity to do any work.

2.—The temporary cases are those where applicants come for labour, and the relief officer is unable to provide them with labour; he must not refuse them, but relieve and work them in the camp till he can draft them to a relief work. The relief camp may be used as a rest-house for gangs on their way to a relief work, who come with an order from the relief officer for food and shelter for the night.

3.—The permanent cases are those not so decrepit and bedridden as to require village relief; but not fit to be sent to a relief work, or to look after and cook for themselves. They include those in bad health, but not ill enough to go to hospital, and the convalescent.

4.—Nothing but cooked food is given at relief-camps, the ration being 1lb. of rice or of millet (ragi) flour, plus 3 pies worth of condiments, for an adult; and half the quantity for a child over 7 years, plus 2 pies. The chapter on special treatment applies equally to special cases in relief camps. The daily food is given morning and evening, at 7. A.M. and 5 P.M.

5.—The two conditions on which the food is given at a relief camp are,—residence, and work. The camp must be enclosed, and admission or exit only possible by a gate, guarded. Sufficient accommodation must be provided for the population, with a margin for influx. Every person in the camp must be put to work, save those actually sick. The feeblest old woman can spin a little thread, others can carry a basket of sand to throw on the floor, or card cotton, or pick wool, and those a little stronger can collect and break stones. For the sake of their own health, spirits, and self-respect, it is better they should do this than that they should be idle.

6.—The establishment should consist of paupers, the only paid officials being the superintendent, the accountant, and the hospital assistant; but 1 rupee per month may be paid to the overseers and to the head cook, in addition to food. Carpenters and blacksmiths may be called and paid in cash. All other servants of the camp should be paid in food, or in raw grain (if caste require it), and be appointed from among the paupers themselves.

7.—The duty of the superintendent is general supervision. He is responsible for examining and testing the grain from the contractor, and entering it in the stock-register; and for seeing that it is securely kept in a safe chamber. He is to be present at feeding-time, to see that the food is well cooked and amount correct; and to see that the paupers, properly organized into gangs and parties, are set to work and do a sufficient quantity of the work; and that all members of the establishment do their duty thoroughly. He will daily muster the establishment and record the attendance in a register, the form of which is at the end of the chapter; will receive daily from the taluk relief officer all new admissions, assort them into gangs, and see that their names are entered by the overseer on his muster-roll.

8.—The accountant must be of the amildar's permanent establishment, selected for special qualification. He has to keep the returns and registers in the forms given in the appendix at the end of this chapter. They consist of—

The stock register of rice, &c., detailed.
The daily register of paupers fed in the relief camp.
The daily abstract statement of paupers fed in the relief camp.
The pay register of establishment.
The cash book and register of contingent expenditure.

9.—The overseer will keep the nominal register (the form given at the end of this Chapter) of the paupers in the camp. If more than four hundred, a second overseer may be appointed. He should be a respectable literate inhabitant of the taluk, Muhammadan or Brahman, or other good caste, in distressed circumstance, glad to do the work for a payment of one rupee, plus half as much again as the raw daily ration. He will marshal the people in the morning to the early meal, and take the roll-call while it is being eaten. When taken, he will write the following and give it to the accountant:—

Attendance morning of the of

Names of gangsmen.	Men.	Women.	Children.	Total.	Total No. of lbs. of grain.

During the day, he will supervise the work of the gangs, as the superintendent may direct. In the evening, he will marshal the people to the evening meal, take the roll-call, and give a memorandum to the accountant, as in the morning.

10.—The gangs are to be organized according to their capacity for work and their caste. If the numbers are small, those of good caste may be allowed to sit apart in working and eating, from the other members of the gang, and can have a portion of the shed walled off for them, still continuing to be numbered in the gang. The number of a gang should be 40 or 50; when the work is sedentary, like spinning or stonebreaking, it may be more; when the labourers are scattered over a space, as on stone-collecting, less. The gangsman should be a respectable illiterate resident of the taluk, glad to accept the post for the wages of a ration half as large again as the ordinary one, 1½ lbs. of grain given raw. The organization of the gangs should be kept uniform, so that people may know their work, their place, and each other; they should sleep in the same shed, eat meals in the same place, and go together after meals to the same work.

11.—The establishment—consisting of cooks, water-carriers, rice-cleaners, grinders, guards, and sweepers,—should be kept to a moderate strength, and recruited from the paupers of the kitchen, or from respectable people of the taluk in distressed circumstances. They should be paid in grain, given raw, at the rate of 1½ lbs., or for the most onerous task 2 lbs., a day; where the numbers are large, the head cook may in addition receive Re. 1 per mensem. The number of each class of the servants should be arranged on a sliding scale in proportion to the number of paupers to be tended. The cooks should be 1 per cent., but more may be required where rice is cooked than where ragi; and where the resident population is very feeble, more persons must be entertained to carry and distribute the cooked food than where there are able-bodied paupers who can be so employed. The water-women and sweepers should be the same as the cooks; but for the sick in hospital, one sweeper will be required for 25 patients. The

occupation of rice-cleaning or ragi-grinding is one that can be given to women of respectable castes; two women in good health should grind 30 sirs of ragi a day, or enough for 60 adults; but if they are enfeebled, two relays, of two women each, should be allowed for each mill. It is not intended to tie officers to a rigid uniformity; every superintendent and taluk relief officer is expected to combine efficiency with economy.

12.—The orphans and children deserted by their parents should be formed into a separate gang (or two gangs, boys and girls separately) clothed in a distinct uniform. As soon as preparations can be made, they should all be sent to the relief camp at the district head-quarters. The disposal of these orphans is in the hands of Government, and no officer is entitled to make any of them over to any society or private person without the sanction of the Famine Commissioner.

13.—Near the door of each relief camp, an enclosure shall be railed off, in which all fresh applicants for relief shall be received. In this place a superior relief officer, the special relief officer of the taluk, the village relief officer, the amildar, or the peshkar, shall attend at a fixed hour every day, to receive the applicants and forward them to a relief work or to admit them into the relief camp.

14.—There shall be a medical officer attached to each relief camp. He will be responsible for seeing that all the requirements of a hospital are provided, and that the sheds are dry and ventilated. He will send in to the superintendent a daily return showing the number of sick in hospital, the daily admissions, discharges, and deaths. He will constantly go round and inspect the residents in the camp, and carry out all the instructions in the chapter on special treatment.

15.—On roads along which emigrants travel to and from the coffee districts, it is necessary to maintain places at which they can be fed. At these places the conditions of residence and work will not be enforced. Two meals will daily be cooked, morning and evening;—those who arrive in the evening will receive a meal, and shelter in a shed for the night, and will be sent on next day, after receiving a second meal in the morning. The superintendent is responsible for seeing that they eat the meal in his presence and do not carry it away, and that this indulgence is granted only to *bonâ fide* travellers in want. The taluk relief officer will pay attention to the dining-places; will endeavour to dissuade feeble and emaciated persons from emigrating, and offer them employment on a relief work; and will, if the number becomes considerable, report the facts to the Deputy Commissioner. The superintendent will add to his daily abstract register a note showing number of people going to and returning from the coffee districts.

16.—An inspection-book will be kept at each relief camp, in which inspecting officers will record orders.

Superintendent's Statement I.—Attendance-roll of Establishment.

No.	Name of Official.	Office.	Attendance.																													
			1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.	13th.	14th.	15th.	16th.	17th.	18th.	19th.	20th.	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.	30th.	31st.

Accountant's Statement I. Stock Register, Relief Camp.

Date.		Ragi.	Rice.	Dal.	Salt.	Tamarind.	Chillies.	Coriander.	Turmeric.	Garlic.	Pepper.	Cummin-seed.	Mustard.	Ghee.	Onions.	Vegetables.	Wood.	Signature of Superintendent.
	Balance in hand . .																	
	Issued																	Enter here to whom issued.
	Balance in Store																	
	Received from Contractor																	Enter here from whom received.
	Total in Store . .																	

The Accountant will each day, in the evening, enter the quantity in lbs. of each article issued and received, and the balance in store at the end of the day. The issues and receipts will be attested by the signature of the Superintendent.

Accountant's Statement II.—Detailed Daily Return of Paupers fed in Relief Camp.

Date.	Name of Gangsman.	Nature and Employment of Gang.	Adults.		Children.	Total.	Total number of lbs. of food.	
			M.	F.				

One page to be given to each day.
This statement gives the details by gangs; at the bottom, the total should be given.

Accountant's Statement III.—Daily Abstract Return of Paupers fed in

Date.	Adults.		Children.	Total.	Total number of lbs of food.		
	M.	F.					

One line for each day. The figures will correspond with the daily total of Statement II.

Accountant's Statement IV.—Pay Register of Establishment.

No.	Name.	Office.	Rate of Pay.	No. of days employed in month.	Amount.	Total.	
					Rs. A. P.	Rs. A. P.	

This will be made on the 1st of every month; it will contain the names of those only who receive cash wages.

Accountant's Statement V.—Cash-book of Receipts and Contingent Expenditure.

Date.	Particulars.	Amount.		Total.	From whom received and by whose order expended.		
		Received.	Disbursed.				

All unusual expenditure will be entered here, and all receipts from the sale of manufactured articles, &c.

Overseer's Nominal Roll.

Name of		Residence.	Caste.	Attendance.														
Gangsman.	Labourer, with father's or husband's name.			1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.	13th.	14th.	15th.

Overseer's Nominal Roll.—(continued).

Name of		Residence.	Caste.	Attendance.															
Gangsman.	Labourer, with father's or husband's name.			16th.	17th.	18th.	19th.	20th.	21st.	22nd.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.	30th.	31st.

CHAPTER IV.

1.—The selecting and setting apart of those of the ordinary labourers reduced by prolonged innutrition is a part of the relief system. The duty of making the selection belongs (Chapter I., section II.) to the civil relief officer, or, in his default, to the Public Works Department officer. But either officer should act under the advice of the medical officer, whose part it is to indicate what treatment is necessary.

2.—The following are the principal classes of special treatment:—

(*a.*) Nursing mothers, themselves weak, who have weakly or very young babies, may get the pay of scale A and light work.

(*b.*) Thin babies may, in addition to their usual nourishment, be supplied with milk once or twice a day.

(*c.*) Young children, under 12 years of age, emaciated, may be fed, instead of being paid; become out-patients of the hospital; get a morning meal of rice and milk, or kanji, in addition to the wage, scale B, and for a few days be treated as the officer in charge may deem proper.

(*d.*) Young and middle-aged adults, reduced by want, may get the scale A and be put to nominal work for about a week, till they gain strength. Further treatment is unnecessary; if it be, the patient is fit for hospital.

(*e.*) Any further treatment required is provided for by the grant allowed the officer in charge of the work. All wages paid to the special treatment class should be paid daily, or thrice a week.

The difficulty in dealing with young children is, that their parents neglect or deprive them of their food; hence it is necessary that all food given to children should be eaten in the presence of the relief officer.

The women in charge of young children of the special treatment class must be carefully chosen, and the relief officer must see that they wash the children in warm or cold water, as may be suitable, and attend to their feeding, comfort, and cleanliness.

3.—The special treatment and its results should be reported fortnightly, in the form shown below, by the officer responsible for the special treatment to his immediate superior, who will submit the report with his opinion to the Famine Commissioner or the Chief Engineer.

Fortnightly Report on Special Treatment.

Work.	Fortnight ending Saturday, the	Number under Special Treatment.				Cost of Special Treatment.			Remarks.
		Men.	Women.	Children over 7.	Children under 7.	Paid in wages (cash).	Cost of food.	Total.	

The Government rates of pay with light work will meet ordinary cases of distress. The success of the treatment will depend on constant selection, and on the humane exertions of the officer in charge. No effort is to be wanting to relieve distress; yet unnecessary indulgence should be avoided.

4.—When a hospital assistant cannot be sent to take charge of a relief-work or relief camp, the duties above described devolve upon the officer in charge of the work or camp.

CHAPTER V.:

Village Inspection.

The system of repeated house-to-house visitation in each village is to make sure that the measures taken by Government for the relief of the famine-stricken are effectual; that the tests enforced to prevent persons not in actual need of relief getting admittance to Government works or relief camps do not produce hardship; that none are allowed to die through neglect or ignorance of the means of help; and that any indications of distress among the general population are immediately brought to notice and checked. The organization and efficiency of the village relief system will accordingly form the principal duty of all district officers, and their activity in this respect will be closely watched. They should be constantly on the move, and give, in their weekly progress-reports, the result of their experience.

A similar system of house-to-house inspection should be adopted in all large towns. A copy of the order introducing the system in Bangalor is appended, as a guide.

2.—In the first instance, it will be the duty of the village officers to ascertain and register the distressed poor of their respective villages. Their work will be checked and supervised by specially-appointed inspectors, and they, again, will be controlled by special relief officers under the Deputy Commissioner. Where necessary, village relief officers may be appointed either instead of, or to assist, the special relief officer. The village relief officer should be a native gentleman of a superior stamp and of active habits, holding a permanent appointment under Government, a temporary substitute being employed in his place. Assistant Commissioners may, in addition to their own duties, be made special relief officers of the whole, or part, of their charge.

3.—The Deputy Commissioner of each district will at once divide those taluks of his district which are severely distressed into circles containing above 30 villages each. Over each circle an inspector, called the "circle inspector," should be appointed, who should visit each village once in seven or ten days. To fill these posts of circle inspectors, only officers holding permanent appointments may be selected; as a rule, the more active and intelligent of the sheikdars and of the gumashtas, or of the amildars of Deputy Commissioners' courts, should be appointed, and men on Rs. 10 per mensem should temporarily fill their places. Ten per cent. of the circle inspectors' work must be tested weekly by the special relief officer of the taluk, or, if there is none, by the village relief officer of the taluk.

All civil relief officers in charge of a taluk (Deputy Commissioners, Assistant Commissioners, or special relief officers) will enter in their weekly diaries the result of their own inspections and supervision.

4.—Every village officer (patel and shanbhog) should be warned that he will be held responsible that his village is free from persons in severe distress. They must keep up a register of those whom the circle inspector considers require relief in the village :—

Register A., of the persons unable to leave the village of , and in need of relief.

No.	Name.	Age.	Sex.	Cause of incapacity to leave the village.	Signature of village officer.	Amount of grain to be given.	Remarks.	
							Circle Inspector, and date of first entry of name.	Other inspecting officers.

In this Register (A) no one must be entered capable of doing any kind of labour on a relief work or in a relief camp,—only the bedridden, the cripples, the infirm, and the blind: they are entitled to receive relief at home, provided that they have no other means of support and no able-bodied relatives in a position to assist them. To such, 1 lb of raw grain may be given daily to an adult, ½ lb to a child above 12 years, and ¼ lb to a young child. The food should be given in the presence of the circle inspector, the village officers, and two respectable inhabitants, and the quantity on each occasion should be sufficient to last the recipients till the next visit of the inspector. A separate Register (B) for such persons should be kept by the shanbhog in the form below, each entry being signed by the parties witnessing the distribution. To meet this, a petty advance of money, not exceeding a month's salary, may be allowed the circle inspector. The superior relief officers, on visiting a village, will invariably examine the people registered, and sign the Registers A and B.

Village Register B.

Name.	No. in Register A.	Quantity of Daily Ration to which entitled.	Quantity given by Circle Inspector.	Date.	Witnesses.

INDIAN INSTITUTE OXFORD

5.—The village patel, with the shanbhog, should compile a list of the very poor who are able to leave the village, but who have not done so. To people on this list, food will not be allowed in the village; but the circle inspector will give them a ticket to present at the place for applicants at the taluk head-quarter relief camp, whence they will be sent either to a relief work or to a relief camp. The circle inspector must not allow them to remain in the village. If it is a day's journey to the taluk head-quarters, the circle inspector will give them either grain or money to buy one day's food, entering the disbursement in column 6 of Register C, and procuring the signatures of two witnesses to the transaction. Ordinary able-bodied labourers will not be entered in this list, which is intended to show that the village officer is aware of any cases of special poverty in his village. At every succeeding inspection, the circle inspector will inquire whether any of the people entered on this list who were sent away have returned, and whether there are any in the village who ought to be entered on it and sent to a relief work or relief camp.

Village Register C.

Date.	No.	Name.	Age.	Sex.	Remarks : showing date on which they are sent to the taluk relief officer, and whether absent or present in the village on subsequent inspection.
1	2	3	4	5	6

Columns 1 to 5 will be filled up by the shanbhog: column 6, by the circle inspector on his visits.

6.—The death of any person on Register (A) must be reported by the circle inspector to the special relief officer, who will enter the total number in his weekly report.

7.—The first duty of the circle inspector or of an inspecting officer visiting a village is to go through the village house by house. Cases of people of good position, such as of parda or high-caste women, in ascertained distress, and any suffering among particular classes, should be specially reported to the special relief officer of the taluk. The able-bodied asking for assistance, or who appear in need of relief, should be directed to the public works, and sent with a letter to the head-quarters of the taluk for an order admitting to the works. The results of the inspection should be compared with the Registers (A), (B), (C), and the

registers corrected. The inspector should satisfy himself that all on Register (A) really in need of relief get relief, and that none on Register (C) are allowed to return and starve in the village.

8.—Professional beggars well able to earn their living, religious mendicants, and the like, are not to be relieved; nor are people able to help themselves to be interfered with.

9.—If, when travelling, a pauper or distressed wanderer is met, the circle inspector will take him to the nearest village. Wanderers so brought or arriving in any other way will be fed once by the village officer in the presence of two respectable villagers, and then forwarded to the nearest relief camp under escort, with a report, signed by the two villagers, giving the circumstances of the case.

10.—The circle inspector must keep up two statements of expenditure—the one corresponding to Register A, and showing the number relieved in grain in each village, and in accordance with this statement he will be enabled to draw weekly on the amildar's treasury for the weekly value of grain to be distributed; the other showing particulars of the casual expenditure, advances to paupers on Register C, to wanderers, &c.

Circle Inspector's Register I.

Village.	Number of people on village Register A.	Quantity of daily grain to which they are entitled.	Quantity distributed by Inspector during week.	Value of grain.
				Rs. A. P.

Circle Inspector's Register II.

Date.	Particulars of expenditure.	TOTAL.

11.—To provide for wanderers, Deputy Commissioners are authorized to deposit a sum not exceeding Rs. 5, with the village officers of a village. As the money is spent, bills should be drawn on the amildar, after two respectable inhabitants have countersigned the vouchers.

The Chief Commissioner, Maisur, in his letter No. 66, of the 26th September 1877, thus addressed the Municipal Commissioner of Bangalore on the abolition of kitchens :—[1]

* * * * * * * *

7.—When the system is ready to be introduced, a day (not later than a fortnight hence) should be fixed, after which no more relief in the shape of cooked food will be given to any one who does not enter the relief camp. Forms are given below :—

*General Register of Houses requiring relief in Beat No.*__________

Inspector of Beat__________

No. of House.	NAME OF RECIPIENT OF RELIEF, IN		
	grain.	materials for work.	

Grain Register.

No. of		Name of recipient.	DAILY AMOUNT OF GRAIN, IN lbs. ; WEEK			
House.	Ticket.		*1st,* Oct. 1 to 7.	*2nd,* Oct. 8 to 14.	*3rd,* Oct. 15 to 21.	*4th,* Oct. 22 to 29.
		Total amount payable by bunnia,				

[1] See page 69.

Weekly Order on ________________________, *Grain-dealer, from Inspector of Beat No.* __________

Pay to ticket-holder No. lbs of rice from to 1877.

Signed ____________________

Register of Relief to Professional Artizans.

(A.) Cotton yarn, for weaving.

Week.					
No. of		Name of Recipient.	Quantity given out of		Value paid for cloth : Rs.
Beat.	House.		Yarn.	Cloth.	

Register of Relief to Professional Artizans.

(B.) Cotton, raw, for spinning.

Week from to 187 .					
No. of		Name of Recipient.	Quantity given out of		Value paid for thread : Rs.
Beat.	House.		Cotton.	Thread.	

Register of Relief to Professional Artizans.

(C.) Leather for shoemaking, &c.

Week from to 187 .					
No. of		Name of Recipient.	Quantity given out of		Value paid for work : Rs.
Beat.	House.		Leather.	Work.	

THE RELIEF FUND OF THE MADRAS FAMINE.

The Government of India, in its letter No. 772, of the 31st August 1877, to the Government of Bengal, stated:—

" The attention of his Excellency the Viceroy has been drawn to correspondence which has passed between the Lord Mayor of London and the General Committee, Madras Famine Relief Fund, in regard to a private meeting held in Calcutta for forming a Famine Relief Committee.

" 2. The Madras Government have undertaken to keep people alive by all means within their power,—to relieve the famine-stricken by giving work to those who can work, by giving food and attendance either in relief camps or kitchens to famine-stricken people who cannot work, and by distributing relief in the shape of a money-dole to nearly half a million of people at their villages; but in order to do this, the whole organisation of the country is strained to the utmost, and it is impossible to place it at the disposal of any irresponsible Committee.

" 3. Before the Government of India could ask for, or accept, the charitable assistance of the public, it would be necessary to ascertain what measures of relief the Central Committee propose to adopt, and what organisation is at their disposal for carrying out those measures.

" 4. The Viceroy, in his telegram of the 12th August 1877, explained that he was unwilling ' to appeal for public subscriptions in aid of the efforts which Government was making to keep people alive,'—to ask for public subscriptions to supplement the Government expenditure for the same ends and through the same channels of organisation as the Government had already occupied. To have done this would have been asking for public subscriptions in aid of the Indian revenues; it was unlikely that the public would have cared to subscribe for this purpose, and the assistance which such subscriptions could have given would have borne but an infinitesimal proportion to the expenditure of half a million sterling a month which the Government has already to defray on account of famine.

" 5. It had become manifest that, in order to meet the heavy drain on the finances of India, which the Madras and Bombay famines were causing, the Government would be obliged to resort to taxation over the whole country, and it followed that the class from whom subscriptions might be expected would have to bear the burthen of taxation; the Viceroy was therefore unwilling to ask for public subscriptions from persons who would have to bear the burthen of taxation for the same objects as those to which their subscriptions were to be devoted.

" 6. This consideration applies only to subscriptions raised in India, but its importance is increased by the fact that, in addition to the destitution in Madras, the Government have to face anticipated scarcity over a great portion of Northern India.

" 7. His Excellency, in his telegram of the 12th instant, added that ' if any definite objects can be specified beyond the scope of the operations of Government, to which the subscriptions of the public can be applied, there can be no objection.' At that time the Government of India had received no communication on the subject from the Government of Madras, and the newspaper reports of the public meetings left it uncertain whether the objects to which the Committee destined their funds were those already provided for by Government or not—in fact, the telegram ultimately sent by the Committee to the Lord Mayor leaves the question open to doubt. His Excellency has, however, had an opportunity of conferring with the Government of Madras, and learns that the Committee propose to devote the funds received by them to special objects not coming within the scope of Government relief, two of which objects are understood to be the relief of those who are not yet so reduced as to leave their villages or to apply for Government assistance, and the support of orphans and destitute children not reached by Government agency.

" 8. While, therefore, it remains, in the Viceroy's opinion, undesirable for the Government itself to ask those who will hereafter have to bear the burden of taxation on account of famine expenditure to give their private subscriptions also towards the same object, His Excellency desires that every encouragement may be given to spontaneous efforts made in this direction."

The Secretary to the Government of India, in his letter No. 773, of the 31st August 1877, to the Secretary to the Government of Madras, said:—

" 3. I am directed to state that His Excellency finds on the proceedings of the Committee, Madras Famine Relief Fund, held on the 24th August 1877, a resolution that the Fund should be devoted—

1) to contributions in aid of local Committees for the relief of necessitous poor, not reached by the Government;
(2) to contributions towards the care of destitute children;
(3) to making allotment towards any other special objects which seem to come within the scope and ability of the Fund.

The discussion tends to show that the Committee desired to adapt its work to measures of relief other than those covered by the action of Government; but in considering the terms by

which the Committee define the objects to which their funds will be devoted, the Viceroy fails to gather such complete information on the point as he could desire. He has no objection to the benefits of private charity being directed towards those necessitous whom the action of Government cannot reach, and accepts it as probable that among women of respectable classes, among persons on small fixed incomes, and among agriculturists struggling at their homes, there may be cases which ought not to come within the scope of Government action, but which may be relieved by charity wherever it has the agency at its disposal. In regard to children,—though Government is endeavouring to keep alive all destitute children that may be thrown on its hands, there may well be room for private charity in regard to children not within this category, and, moreover, the work of providing for and supporting such children hereafter, either by grants to orphanages or to those who will receive such children, is obviously a fit subject for private charity. As Lord Lytton learns that the subject has been under the consideration of his Grace the Governor, he will be glad to receive information as to the conclusions which the Madras Government have come to, and to learn not only what are the specific objects in detail to which funds are to be devoted, but also what agency the Committee propose to employ. In large towns there will, no doubt, be plenty of volunteer agency available, but in the villages outside the chain of relief organisation subordinate to the Collector it will be difficult to find the requisite agency, and Lord Lytton deprecates the diversion of this organisation to purposes other than those of Government relief. Experience has shown that, when the Government relief organisation has been placed under the orders of a Central Committee, it has led not only to the Collectors being burdened with additional work, having to submit double sets of returns, and to correspond with an additional master, but also to a considerable amount of friction and some unseemly discussions between Government officials and their superiors. His Excellency hopes, therefore, that the Government of Madras will be able to direct the operations of the Committee into some line where the agency to be employed will not be that of the overworked establishment already employed by Government."

The Secretary, Madras Famine Relief Fund, in his No. 2810, of the 20th September 1877, to the Secretary to the Madras Government, said[1]:—

"As information is received, the operations of the Madras Famine Relief Fund will be definitely directed and widely extended.

"2. The Committee regret that much more has not been done, but difficulties over which they had no control have impeded their operations.

"3. The circulars issued by the Committee, requesting collectors and other influential officers to aid by forming local committees, have elicited little response. The General Committee have accordingly resolved to send deputations, to arrange for further operations. A copy of the instructions given these gentlemen will explain the committee's intentions in employing them. Missionary agency is relied upon.

"4. Difficulties in utilising the famine relief funds have been alluded to. These have arisen from the impression produced by what appeared in the public prints with respect to the suspension of public meetings, and by the official correspondence in the *Gazette of India Extraordinary*, dated 31st August 1877. Officials have felt themselves debarred from cooperating in the objects of the Committee.

"5. I am to express the earnest hope of the Committee that Government will be pleased to inform its officers that public servants of all grades should give all the assistance they can render, without detriment to their official duties, to the formation of local committees, and to promote the objects which the Famine Relief Committee have in view."

INSTRUCTIONS.

To organise local Committees in various distressed districts, in direct communication with the General Relief Committee at Madras, for distribution of famine funds.

2.—To organise special agencies where local committees cannot be formed or sub-agencies are likely to be more efficient.

3.—The fund is designed to relieve the necessitous whom Government cannot reach, and care is necessary to avoid even indirect interference with Government operations.

4.—Under the above designation may be included those not ordinarily reckoned "poor," but who are rendered dependent by the present distress.

5.—While Government operations have for their object the salvation of life, the funds may be applied to the mitigation of intense suffering.

6.—Whatever agency may be employed, proceedings are to be reported and accounts rendered by that agency to the General Committee.

7.—The General Committee will be prepared to make pecuniary provision for preparing local accounts.

8.—It is important to impress upon those invited to give their services, that the object is not to collect funds, but to secure promptitude, economy, and efficiency in dispensing the funds placed at the General Committee's disposal.

9.—The deputations are to keep the General Committee informed of the local arrangements made.

10.—These indicate generally the Committee's wishes, but they leave the deputations a wide discretion and rely on their making the best arrangements which circumstances admit of within the scope of the funds and the general principles above enunciated.

11.—The Committee look to the deputations for practical suggestions for the prompt distribution of the funds to the object to which they desire to apply them.

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[1] This was forwarded with letter No. 2810, of the 20th September 1877, from the Government of Madras, to the Government of India.

The Government of India, in its No. 863, of the 25th September 1877, to the Government of Madras, stated:—

"2. The information asked for in my letter No. 773, dated 31st August, is still but incompletely supplied.

"3. Your letter directs the attention of the Government of India to the resolution passed by the Committee, Madras Famine Relief Fund, on the 24th August 1877, and you recapitulate the objects of the Committee:—

(a) Aiding, by contributions, local committees for the relief of the necessitous not reached by Government.
(b) Giving contributions towards the taking care of destitute children.
(c) Providing clothes for destitute women and children.
(d) Making allotments towards any special object coming within the scope of the Fund."

"4. Object (a) still needs definition as to the classes of the necessitous not reached by Government: there may be many such classes, but without further specification there is danger of the operations of the Committee overlapping and clashing with those of Government.

"5. As to No. 2, Government is endeavouring to maintain all destitute children during the famine, and there is room for discrimination between the objects of the Committee and those of Government. The question of providing for the maintenance of these destitute children, after the famine, may be deemed worthy of the consideration of the Committee.

"6. To the third class of operation, the Government of India has no objection; and the fourth provides for exceptional cases not happening to fall under the former categories.

"7. There is much room for more definite specification of the purposes of the Committee, and the Viceroy observes that the Committee propose, as information is received, to complete the work of formulating the objects of their expenditure.

"8. The Viceroy learns that the Committee accept, as their field, the mitigation of suffering, as distinguished from the saving of life, which the Government has undertaken. The Committee also inculcate on their local agents to avoid indirect interference with Government operations. His Excellency is satisfied that the Committee will act on different lines, and for other objects, than those covered by the operations of Government; and in this assurance has consented to the services of local officers being enlisted in aid of the Committee; but, having regard to the want of definiteness in the scheme of operations, and the promise to remedy this, I am to express the hope that the Madras Government will assist the Committee, not only in systematising the objects to which their expenditure may be directed, but also in regulating the assistance to be given by Government officials so as to reduce the anticipated dangers of friction, of increased labour, and of having to satisfy conflicting claims.

"9. The concluding paragraph of my letter of 31st August 1877 was by no means meant to convey an absolute prohibition against Government officers taking part in the disbursements of the Committee's funds. It was simply a hope that the Committee would use their own agency as far as possible, and thus avoid imposing burthens on the collectorate establishments.

"11. His Excellency desires me to express his confident assurance that the Madras Government will accept the responsibility which attaches to them, of ascertaining and of guiding the action of the Committee; and that they will, while labouring to further the legitimate action of the Committee, endeavour to systematise the scope of its expenditure."[1]

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[1] The Secretary of State, in his despatch No. 82, of the 8th November 1877, observed that the views of His Excellency the Governor General had his concurrence.

THE PRESERVATION OF LIFE DURING FAMINE.

The Government of India, in its letter No.— of the 16th January 1877, to the Hon'ble Sir Richard Temple, Bart., K.C.S.I., Lieutenant-Governor of Bengal (on a Special Mission), stated :—

His Excellency the Governor-General in Council having been pleased to depute you on a special mission for the purpose of inspecting the districts suffering from scarcity in the Presidencies of Madras and Bombay, and conferring personally with the Governments of those Presidencies regarding the measures which are being carried out, and which will have to be carried out, for the relief of distress, I am directed to communicate to you the following observations, indicating the general views of the Government of India on some of the important questions with which you will have to deal.

2. While it is the desire of the Government of India that every effort should be made, as far as the resources of the State admit, for the prevention of deaths from famine, it is essential that the most severe economy should be practised. The distress, extending over 21 districts in the two Presidencies, and affecting a population of 27,000,000, threatens to be protracted for so many months, that the utmost care is necessary to restrict the expenditure. If financial considerations were less strong, it would be true that a Government has no better right in times of scarcity than in other times to attempt the task of preventing all suffering. False ideas on the subject have become so prevalent, that the Government runs some risk of being charged with inhumanity when it declares that these are the principles by which it intends to be guided. The Governor-General in Council will not be deterred by such considerations as these from a course of action which he knows to be right. Everyone admits the evils of indiscriminate private charity, but the indiscriminate charity of a Government is far worse. The Government of India is resolved to spare no efforts which may be necessary and practicable, with reference to the means at its disposal, to save the population of the distressed districts from starvation; but it will not sanction a course of action tending to demoralise the people themselves, passing through a time of trial, and leading to the imposition of heavy and permanent burdens on the industry of the country. Even as to the preservation of life, there are limits imposed by the facts with which we have to deal. If the estimates of the Local Governments are correct, the relief of the existing scarcity in the Madras and Bombay Presidencies, including loss of revenue, will not cost less than six and a half millions sterling. Considering that the revenues are barely sufficient to meet the ordinary expenditure of the Empire, and that heavy additional taxation is both financially and politically impracticable, the task of saving life, irrespective of cost, is one beyond our power to undertake. The recurrence of a few famines such as that from which the country is now suffering, or such as that which occurred three years ago in Behar, would go far to render the future government of India impossible. The embarrassment of debt, and the weight of taxation, would become more fatal to the country than famine itself. They believe that, from the history of past famines, rules of action may be learnt, enabling them to provide assistance for the people without disastrous expenditure.

3. The numbers * on the relief works are so great, that the Government of India see reason to apprehend that many persons must be employed to whom such relief is not absolutely essential, and who without it would have been able to maintain themselves for some time. The Governor-General in Council does not doubt the reality of the calamity that has fallen upon the country—a calamity which unhappily threatens to become still more disastrous. But the collection of numbers of people on relief works in seasons of scarcity is no proof of serious actual suffering. If relief works are carried on upon wrong principles; if labour is not exacted from all physically able to work; if proper supervision is wanting, and people find that they can obtain, for the asking, and in return for no work at all, wages in money or in grain,—there is hardly any limit to the numbers who, even in prosperous times, may be attracted to them. As Sir George Campbell has observed—

* **Madras—**		
On relief works ...	1,125,117	
Fed gratuitously ...	119,363	
		1,244,480
Bombay—		
On relief works ...	...	287,000
		1,531,480

When a lax system is established, and every one, to the child, gets paid for the merest pretence of work, with probably a good many abuses besides, the thing becomes too attractive,—the whole country tends to come on the works,—the numbers threaten to be overwhelming. The people, too, become demoralised; works, where real work is exacted, are deserted; and many evils follow.

A good illustration may be found in the official narrative of the scarcity of 1873-74 in the North-Western Provinces :—

In season of considerable pressure, not of absolute famine, the relief works in Gorakhpur and Basti were for weeks daily thronged by more than 200,000 men, women, and children, who found an attraction in the light work, in the liberty of going at night to their houses after attending a sort of vast picnic during the day, and in the wages earned at a time when ordinarily they had no employment in the fields, and had to live on their harvest savings. But when the wages were cut down to a mere subsistence allowance, when a full day's labour was insisted on, and when the liberty of living at their homes was threatened, these immense crowds melted away as rapidly as they had collected, and it was found that there was hardly any one who really stood in need of relief.

4. The principles on which operations for the relief of famine in India should be conducted have been established by past experience. When, at the commencement of distress, it is doubtful whether serious scarcity is actually threatening a tract of country, it may be desirable to open, as a tentative measure, small and well-supervised local works. The Government may thus avoid the risk of finding itself committed to serious expenditure on large public works which there was no immediate necessity for undertaking. For reasons of this kind the Government of India, at the commencement of the present scarcity, while still in doubt as to the extent to which relief operations might ultimately become necessary, thought it right, both in the Madras and Bombay Presidencies, to encourage, in the first instance, the organization of works of a local character in preference to those of greater magnitude. But when it becomes no longer a matter of doubt that serious scarcity is impending and that relief will have to be provided upon an extensive scale, the great difficulty of insuring adequate supervision for numerous scattered works renders it necessary to resort to large works, on which large gangs of labourers can be employed and on which adequate labour-tests can be exacted. As soon, therefore, as it is clear that the Government will have to undertake serious measures for the relief of scarcity, no time should be lost in giving to the people, to the greatest extent practicable, the means of employment on large public works. Such works supply the means of subsistence to the able-bodied poor; they prevent, instead of merely relieving, distress.

5. In choosing such works, it is of great importance that those selected shall be of a permanently useful and remunerative character. The works should be such as are calculated to absorb a sufficient proportion of labour during the anticipated period of famine. They need not always be in the distressed districts, or near the homes of the people who require relief. When railways or other good means of communication are available, it may be easier and wiser to carry the people to the works and to their food, than to carry the food to the people. Temporary migration from their homes has always, in times of scarcity, been the natural and one of the best remedies to which the people have had recourse, and the organization of public works in places where food is plentiful, and to which access is not difficult from the distressed districts, may be more useful than works at places where the supply of food is already insufficient. No apprehension need be felt that the people will not return to their homes when the period of distress has passed away.

6. When, by undertaking large public works, employment has been provided for the able-bodied poor, it may be necessary, before the pressure of famine has become extreme, to afford support to persons physically unable to give a full amount of labour in return for the wages they receive. These must be employed either in poor-houses or on roads and other easy work,—every effort being made to prevent relief being given to any one who does not require it. It has often been found a most useful test of actual distress to insist, when charitable relief is necessary, that it shall be given in the shape of cooked food.

7. When distress becomes extreme, and a state of absolute famine has been reached, large public works may become insufficient to afford relief to the numbers of people in need of it. At such a time, the Government may be driven to set up relief-works near the homes of the people on a scale inconsistent with careful supervision or searching tests. Such measures as may be practicable must then be adopted for reducing to a minimum the inevitable evils that arise.

8. A satisfactory feature in the course taken by the Bombay Government in dealing with the present famine is their adherence to the principle of non-interference with private trade. In Madras a different policy has been observed. At an early stage in the scarcity, the Government of Madras contracted through a local firm for a supply of 30,000 tons of grain, to be used as a reserve to meet deficiencies in the local markets. Applications for authority to make further similar purchases have since been received, but have not been sanctioned, the Government of India being of opinion that such purchases are calculated to discourage the operations of private trade, and to increase, instead of diminishing, the difficulty of procuring the supplies which will be necessary to augment the deficient food-supply of the Presidency. Inquiry has been made whether this objection would apply to the Government advertising for tenders for the supply and delivery of grain in the immediate neighbourhood of certain works on which gangs of labourers are employed at a distance from all local markets. The answer must be in the negative. There is no more objection to such purchases than there is to the Government making purchases through the Commissariat for the troops. The objection is to the Government entering into transactions which may excite apprehensions on the part of traders, that the Government are about to take their place, and so to disarrange the bases on which they found their calculations of profit. In all matters connected with famines, the rule should be that the operations of the Government, and the reasons on which those operations are based, shall receive full explanation and publicity.

9. One of your most important duties will be to ascertain how far private trade, if left unfettered, may be counted on to supply the wants of the Madras Presidency. The Governor-General in Council entertains a strong opinion that the supply of that Presidency from foreign sources, such as Burma, Bengal, &c., should be left altogether to private trade, and that the intention of the Government so to act should be widely made known, together with full and frequent information regarding the prices of food-grains and other articles of consumption in the distressed and other districts. It is possible, however, that in certain localities at a distance from the lines of railway and from large markets, it may be requisite for the Government to intervene by making purchases at the nearest local depôt to which the trade will convey the grain. In such cases, where the local trade, from whatever cause, is not active, the direct inter-

vention of the Government may probably tend rather to facilitate than to discourage the importation of grain, by affording confidence to the trade that importations will find a certain purchaser. Finally, it must not be overlooked that there is a great advantage in paying labourers on relief works in money, wherever practicable.

10. The Governor-General in Council would have hoped that it was hardly necessary to impress upon local officers the importance of exercising no interference of any kind with the object of reducing the price of food; but cases have come to his notice which show that a warning on this point may not be uncalled for. In a time of scarcity, nothing can be more mischievous than such interference, and high prices, by reducing consumption and encouraging the importation of fresh supplies of food, are not only necessary, but highly beneficial.

11. A matter of importance is the question of transport of grain, both on the railways and to parts of the country with which the existing means of communication are insufficient, as well as of providing additional facilities for landing in at the ports.

12. His Excellency in Council has laid down the principle that if any great irrigation works or other works of local and provincial importance, involving heavy future responsibilities for their completion and maintenance, be undertaken, certain rules will be held applicable in regard to the enforcement of provincial responsibility for meeting the charges for extraordinary public works. His Excellency in Council desires to take the present opportunity of declaring his opinion, not only that the main portion of the charges incurred on public works which protect the people against famine, and which add greatly to their wealth, should be borne by the people protected and benefited, and not by the general taxpayer, but also that every province ought to be held responsible for meeting the cost of the famines from which it may suffer. When Local Governments and local officers understand that the inevitable consequence of unnecessary expenditure will be the imposition of heavy burdens upon their own people, and not upon those of other provinces, a powerful check upon extravagance will have been established. The opinions of Her Majesty's Secretary of State for India have thus been expressed:—[1]

> There is a further point, though not one to fall within the scope of such an inquiry as that which you have directed to be made, which should, in my opinion, be carefully considered by your Excellency's Government before the questions that arise in connection with the occurrences of 1873-74 can be regarded as fairly met—I refer to the proper incidence of the charges that are incurred in providing for the requirements of the population of a district in a period of drought. However plain may be the primary obligation on the State to do all that is requisite and possible towards preserving the lives of the people under such circumstances, it would be most unwise to overlook the great danger of tacitly accepting, if not the doctrine, at least the practice, of making the general revenues bear the whole burden of meeting all local difficulties or of relieving all local distress, and of supplying the needful funds by borrowing in a shape that establishes a permanent charge on the general revenues for all future time. In Bengal, where the beneficial interest of the Government in the land is limited by the permanent settlement, these considerations are of special application.
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> The question which is thus raised,—how to make local resources aid in meeting local wants—is no doubt one of great difficulty and complexity, particularly in a country like India. But the difficulty of providing any satisfactory solution of it should not be allowed to obscure the perception of its vital importance to the future well-being of the country, as well as of the troubles to the Government and the demoralisation of the people which must necessarily result from postponing too long the introduction of some system under which shall be suitably recognised the undoubted responsibility which rests on the people themselves to provide for their own support and well-being. The duty of the State does not extend further than to see that the needful means are supplied for giving effect to this principle, and for distributing the local burdens arising from its practical application in the manner which shall be most equitable and least onerous to those who have to bear them.

The Governor-General in Council is of opinion that they ought to be kept in view in connexion with the present scarcity, and that a considerable portion, if not the whole, of the permanent charges which relief operations now in progress may entail, ought to be borne by the Presidencies in which the expenditure is being incurred.

13. The above are the only observations that the Government of India deem it at present necessary to place on record in connexion with the onerous and delicate duty which you have undertaken; and they have been made, not so much with the view of advising you on a subject which you have probably studied more thoroughly than any other public officer in India, as for the purpose of furnishing you with a statement of the views of the Government of India, to which you can refer in your communications with the Local Governments.

The Government of Bombay in the Public Works Department, No. 50 E.—158, dated 25th January 1877, writes:—

By Resolution No. 26 E.—93 of the 18th January 1877, the village officers were directed to "take care that no person is allowed through obstinacy to die of starvation." This injunction was quite in conformity with the principle on which the Government was then acting, *viz.*, that no person was to be allowed to die of starvation, if it was in the power of the Government to prevent it. But His Excellency in Council now observes that in the instructions issued by the Government of India to Sir R. Temple on the 16th January 1877, the following very important qualification is introduced:—

> Even for an object of such paramount importance as the preservation of life, it is obvious that there are limits which are imposed upon us by the facts with which we have to deal.

2. The letter in question does not lay down any principles by which the district officers should be guided in refusing the aid needed to preserve life. In no case could assistance be

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[1] Despatch from Secretary of State, to Government of India, No. 59 (Revenue), dated 25th November 1875.

more properly refused than in that of a man who wilfully and deliberately refuses to render the reasonable equivalent demanded by the Government for the means of subsistence which it is ready to afford him.

3. In modification of the instructions issued by the Revenue Commissioner, in the case of an individual refusing to perform work which he is capable of doing on the terms fixed by Government, it is ordered that no relief shall be afforded him at the public expense during the continuance of such refusal.

The Government of India, in its letter No. ——, of the 2nd February 1877, to the Government of Bombay, observes:—

The attention of the Government of India has been drawn to the Resolution of the Government of Bombay, No. 50 E.—158, dated 25th January.

2. The Government of Bombay seems to think that the Government of India has laid down the doctrine that there are circumstances in which the Government ought to allow people to die of starvation, although it may be in its power to prevent it. The Resolution referred to states that the instructions to Sir Richard Temple—

> do not lay down any general principles by which the district officers should be guided in refusing the aid needed to preserve life, and that His Excellency in Council would view with satisfaction the issue of supplementary instructions on that point.

The Government of India has never had any such views as those which the Government of Bombay supposes it to have expressed.

3. The second paragraph of the instructions to Sir R. Temple contains a statement of the principles by which our policy ought to be guided. Those principles may be summarised as follows:—

> It is no more the duty of the Government to prevent all distress in time of famine than in other times; but it is the duty of the Government to spare no effort which may be possible to save the people from starvation and from an extremity of suffering dangerous to life. Paramount as this duty is, and fully as it is accepted by the Government of India, it is obvious that it could not be adequately performed if it involved the necessity of an expenditure beyond the power of the country to bear, and which might go far to render the future good government of India an impracticable task.

It has often been assumed that the Government was placed in this dilemma, *viz.*, that in times of severe famine it must either allow people to die of starvation or incur expenditure which might ultimately bring ruin upon the country. The Government of India has denied that any such dilemma exists, and asserted that the history of past famines shows that the duty of preventing loss of life and extreme suffering can be discharged without charges disastrously heavy. This opinion, however, will only be justified if every effort be made to prevent relief being given to those who do not actually require it, and to exact the application of tests so that no more relief shall be afforded than is absolutely necessary.

4. The Governor-General in Council thought it unnecessary to give assurances of his sympathy with suffering, or to dwell on his determination that no one shall die of starvation if it be in the power of the Government to prevent it. As to the duties which humanity imposes upon the Government, there has not been, and will not be, any change of policy. We say that human life shall be saved at any cost and at any effort: no man, woman, or child shall die of starvation. Distress they must often suffer; we cannot save them from this. We wish we could do more, but we must be content with saving life and preventing extreme suffering, and it taxes all our efforts and all our resources to accomplish even this. In regard, therefore, to the inquiry made by the Government of Bombay as to the "general principles by which the district officers should be guided in refusing the aid needed to preserve life," the reply must be that there are no such principles, and that there are no circumstances in which such aid can be refused.

5. The Resolution of the Government of Bombay, No. 26 E.—93 of 1877, dated the 18th January 1877—

> approved of certain orders issued by the Revenue Commissioner, Southern Division, prescribing the mode of dealing with labourers employed on relief works, who might think fit to leave them from dissatisfaction with the rules laid down by the Government for regulating the rate of wages.

The Governor-General in Council agrees with the Government of Bombay in generally approving the Revenue Commissioner's orders, subject to one exception. By those orders the village officers were required to watch all persons who had left the works, and to—

> take care that no person is allowed through obstinacy to die of starvation.

The Governor-General in Council does not believe that any one ever died of starvation through obstinacy, and certainly no rules for dealing with such cases can be necessary. The rule that—

> in the case of an individual refusing to perform work which he is capable of doing on the terms fixed by Government, no relief shall be afforded him at the public expense during the continuance of such refusal.

The result of such refusal will certainly, in the case of agricultural labourers, not be death from starvation. Unless circumstances are very different in Bombay from those in the Bengal Presidency, there may be exceptional cases which will require exceptional treatment. There is the class of respectable women who cannot appear in public, and for whom the

ordinary labour-tests are altogether inappropriate. There may also be men who, on account of caste or other prejudices or feelings, would rather die than take employment on relief works. Ordinary rules will not be applicable to such cases, which must be dealt with as they arise. These views are, as to the main principle involved, identical with those stated in paragraph 7 of the instructions to Sir R. Temple, which contemplate the existence of circumstances under which it may be necessary to give relief without the application of the ordinary tests.

The Government of Bombay, in its letter No. 91E., of the 12th February 1879, to the Government of India, states :—

2. His Excellency in Council learns that, when he issued the orders contained in Government Resolution No. 30 E.—158, dated 25th January 1877, he had "seriously misunderstood" the views of the Government of India, as expressed in their instructions to Sir Richard Temple, and His Excellency in Council is so fully sensible of the responsibility cast upon this Government for correctly interpreting all orders of the Government of India in the present crisis, that he feels compelled first to call attention to certain prominent passages in the instructions to Sir Richard Temple.

3. In the 2nd paragraph of those instructions you observe :—

> Even as to the preservation of life, there are limits imposed upon us by the facts with which we have to deal. If the estimate of the Local Governments are correct, the relief of the existing scarcity in the Madras and Bombay Presidencies, including loss of revenue, will not cost less than six and a half millions sterling. Considering that the revenues are barely sufficient to meet the ordinary expenditure of the Empire, and that heavy additional taxation is both financially and politically impracticable, we must admit that the task of saving life, irrespective of the cost, is one beyond our power to undertake. The recurrence of a few famines, such as that from which the country is now suffering, or such as that which occurred three years ago in Behar, would, upon that principle, go far to render the future Government of India impossible. The embarrassment of debt, and the weight of taxation, consequent on the expenditure thereby involved, would soon become more fatal to the country than famine itself.

And in the 3rd paragraph you add :—

> If relief works are carried on upon wrong principles; if labour is not exacted from all physically able to work; if proper supervision is wanting, and people find that they can obtain, almost for the asking, and in return for next to no work at all, wages in money or in grain, there is hardly any limit to the numbers who even in prosperous times may be attracted to them.

4. This Government, therefore, came to the conclusion that there was a limit in respect of cost beyond which, even for the preservation of life, the measures of Government could not go; and that with the object of keeping the expenditure within that limit, and thus enabling the Government to give the largest amount of relief to the population, it was its duty to exact labour strictly from all physically able to work.

It therefore ordered that a person refusing to perform work which he was capable of doing, should not, while persisting in that refusal, be relieved at the public expense.

5. In the 4th paragraph of your letter of the 2nd instant, the idea of limiting the efforts which should be made for the preservation of life, by consideration of cost, is entirely discarded, and the determination of the Governor-General in Council announced, "which he thought had already been made sufficiently clear," to be, that "no one shall die of starvation if it be in the power of the Government to prevent it." The Government of India then rules as follows :—

> We say that human life shall be saved at any cost and at any effort; no man, woman, or child shall die of starvation.

From these words it is understood that there are no limits to the responsibility of the State, either as regards the efforts it may make, or the outlay it may incur, with the object of preventing people from dying of starvation.

6. The test case taken by this Government was that of a man—

> who wilfully and deliberately refuses to render the reasonable equivalent demanded by the Government for the means of subsistence which it is ready to afford him;

and in modification of the previous orders, which were, that no person was to be permitted "through obstinacy to die of starvation," it was, in accordance with what was at the time believed to be the intention of the Government of India, ordered that no relief should be given to "an individual refusing to perform work which he is capable of doing." Your 5th paragraph contains the following instructions :—

> Under almost all circumstances, which, if the Government of India is rightly informed, are likely to hold good in the distressed districts of the Bombay Presidency, where the population is almost wholly agricultural, and accustomed to field and other manual labour, the rule laid down by the Government of Bombay appears quite proper. That rule is, that 'in the case of an individual refusing to perform work which he is capable of doing on the terms fixed by Government, no relief shall be afforded him at the public expense during the continuance of such refusal.'

7. This sentence seems to confirm the orders issued by this Government, which, earlier in the letter, the Government of India hold to have indicated a "serious misunderstanding" of the intentions of the Government of India; and his Excellency in Council, I am to state, feels himself, therefore, in some difficulty. It is true that your letter goes on to state that—

> the result of such refusal will certainly, in the case of agricultural labourers, not be death from starvation;

but the question is, should there be such obstinacy, is the individual to be allowed to die?

8. The Governor-General in Council expresses his disbelief "that any one ever died of starvation through obstinacy," and the Governor in Council would be glad to think that His Excellency is right in this opinion; but there is reason to apprehend that instances of the nature referred to are not unlikely to happen.

9. Some on strike are strong and robust, and able, for a time, to endure privation; others are weakly; they appear to be acting in bodies, and in concert, and the fear is, that before the majority, who are comparatively strong, are brought to reason, some of the weakly will be reduced to a condition of great prostration. The Government, therefore, is placed in this dilemma: if they give way to the people, they cannot successfully carry out the policy of the Government of India—in which they concur—of strictly limiting expenditure; and if they do not give way, some deaths may occur. Feeling, therefore, that their rule has been approved by the Government of India, under what they cannot but hold to be too sanguine a view of the case, they will, until otherwise instructed, act upon the positive injunction contained in your 4th paragraph, that—

no one shall die of starvation if it be in the power of the Government to prevent it.

10. As regards the respectable class of women who cannot appear in public, and of those who have caste prejudices, this Government endeavoured to guard themselves. In their Resolution which the Government of India review, the orders would apply to him only who refused a reasonable equivalent, or to perform work which he is capable of doing, and in the Summary No. XI., for the week ending the 26th January 1877—"It is necessary to add that Government never require people to do work forbidden by their caste rules." This Government had no intention to compel women to appear in public whose habit it is not to do so; or to demand from any person work or service which his caste prejudices would render it impossible for him to perform.

The Government of India, in its letter No. — of the 27th February 1877, to the Government of Bombay, writes thus:—

2. The Governor-General in Council regrets that his instructions to Sir Richard Temple should not have been correctly understood by the Government of Bombay. The interpretation placed upon them by Sir Richard Temple has been from the first in accordance with the intentions of the Government of India; and his Excellency in Council fails to perceive the obscurity by which the Government of Bombay has been misled. These are matters of little importance; and as the Governor-General in Council has never attached any blame to the Government of Bombay for the misapprehension which has arisen, it is needless to continue a merely verbal discussion.

3. The Government of Bombay has most wisely determined to take measures for carrying out the decision that relief shall be given to those only who require it; that reductions in the amount of relief wages have been made, and orders regarding the exaction of moderate tasks on relief works issued. The result has been a strike among the labourers, who prefer to obtain good wages for doing little or nothing, to obtaining reduced wages and for doing work. Large numbers of people have left the works:—

They appear to be acting in bodies and in concert, and the fear is that before the majority, who are comparatively strong, are brought to reason, some of the weakly will be reduced to a condition of great prostration. They wander about, and may die out of reach of assistance.

4. The Government of Bombay wishes to know what ought to be done under these circumstances. It is understood that, while the determination is being strictly adhered to, that the orders which were given shall be enforced, measures are at the same time being taken to carry out the injunction that "no one shall die of starvation if it be in the power of the Government to prevent it."

5. The most efficient measures should be taken to guard against the danger pointed out in your letter, and to give relief in each individual case. When a man is in danger of dying from starvation, it is evident that we cannot refuse to save him because he has been misled into joining a strike, or has neglected to comply with orders. If, after all efforts have been made, the case anticipated should occur, and some of the more weakly should "wander about and die out of reach of assistance," the misfortune, much regretted, will throw no discredit on the Government. In carrying out the humane policy, the Government does not pretend that it can guard against the numerous risks to life which arise in time of famine, or that it can save every one from the consequences of his own folly.

SUSPENSIONS AND REMISSIONS

OF

LAND REVENUE IN THE MADRAS PRESIDENCY.

[Condensed one-third.]

The Government of Madras, in its letter No. 576, of the 9th February 1877, to the Government of India, stated :—

"2. During the heavy assessments which prevailed in this presidency to the time of Lord Harris's Government, and before the revenue settlement which has taken effect in five districts, and in portions of four others, remissions were large and numerous, administered under a system forming part of the annual "jamabandi." In regard to settled districts, the following are the sole rules :—

(1.) *Wet land.*—Full remission on land left waste, or crop totally lost, owing either to deficiency or excess of water.

(2.) *Dry land.*—None; except in very exceptional circumstances of distress, and under the express sanction of the Board of Revenue.

In regard to unsettled districts,—to dry land, the second rule applies; on wet land, partial loss of crops entitles the occupant to partial remissions; the additional concession being based on the fact that the rates are often high, and without allowance for vicissitudes of season.

3. Taking the accounts of the fasli ordinary year ending 30th June 1875, the remissions under the first head came to Rs. 2,70,000 caused principally by disastrous floods in Nellor; those under the second head, to Rs. 1,00,000. Sundry remissions of a miscellaneous character brought the total to 4¾ lakhs, or ⅛ per cent. on the total assessment of a ryotwari holding of Rs. 3,88,46,315.

4. As to the proposal to saddle the ryot with the sum that would now, under law, be remitted, the assessment on a crop which was never grown, as a debt to be paid by him in the following year, the Governor in Council is entirely opposed to the suggestion.

As to wet land, the Government is under an implied covenant to supply the necessary irrigation. In making the settlement, which proceeds on the basis of the crop being shared between the Government and the ryot, an allowance is made to the ryot for ordinary vicissitudes of season. This being so, the full assessment is exacted, even in bad years, where the loss of crop is partial only; when the water to be supplied fails altogether, the attempt at such exaction would be resisted as a grave injustice.

As to dry land, although there is no similar implied covenant, the objections to the policy of exacting the full assessment in a season like the present are manifold:—

(*a.*) The Madras ryot is heavily taxed; 5 rupees per acre for wet (single crop) and 1 rupee per acre for dry being his average assessment. Moreover, under other terminable settlements, the whole of the waste land is given up by Government for the term of thirty years, and under the zamindari settlement it is given up in perpetuity, in addition to the percentage for the zamindar's commission. But in Madras, not only is every acre of waste liable to its full quota of tax as soon as brought under cultivation, but there is no allowance whatever for fallow, or for land in a ryot's occupation which is *bonâ fide* set apart by him for the pasturage of his cattle. For instance, during the fasli year last reported on, 2,134,110 acres, with an average assessment of 15 annas, left waste by the ryots out of their holdings, chiefly for pasturage, was charged against them and fully collected.

(*b.*) The number of leases is 2,392,064; of these, 38,825 only are above Rs. 100, while upwards of one million and a quarter are below Rs. 10. The average extent of a holding is 8 acres, and the average assessment payable is Rs. 15, or thirty shillings sterling. How are two million peasant-proprietors of this kind to pay sixty shillings apiece next year, after a season of unprecedented calamity? So far from supposing it possible to collect the assessment from the great body of impoverished ryots, the Government anticipate having to make considerable advances for the assistance of cultivators in the purchase of agricultural stock and seed grain.

(*c.*) By immemorial custom, the Madras ryot can re-adjust the extent of his holding within a certain day of each year, which day is selected with reference to the monsoon on which his district depends for rain. In Bellary, the south-west monsoon is looked for in the first week of June, and the ryot is allowed till the 15th of July to contract his holding. If Bellary cultivators had foreseen that, however bad the coming season, they would sooner or later be called upon to pay the full assessment on their holdings, those holdings would, in the vast majority of cases, have been contracted or relinquished. In this way the Government would be a far greater loser in direct collection of revenue than it is at present; would have many hundreds of thousands more on relief works; and would lose, for the common good, the produce of the cultivation still carried on. Many a ryot, now digging a well and toiling on as best he may with the help of the village money-lender, would immediately fall into the utter destitution characteristic of the great majority of his fellows; would not try to help himself, if his failure were to be followed by the inexorable demands of the State for the full assessment of his land.

5. His Grace in Council trusts that he has demonstrated the utter impossibility in part, and the inexpediency in all, of attempting to vary the usual undertaking and custom by substituting, suddenly and without notice, suspension for remission of revenue. He would, however, point in conclusion to the large figures yielded by the land revenue of Madras—the

highest in any part of India—and to its annually steady increase. He believes that its management is thoroughly well in hand by those to whom the system pursued has long been familiar; and that the innovation proposed has nothing to recommend it, except that it would retain, apparently, to the credit of Government, a claim which would never be realized. It is as incompatible, in his opinion, with justice to the ryot as with the prosperity of the general revenues of the presidency; not only the revenue of the land, but that of salt, stamps, abkari—rises or falls with the condition of the ryot, and of the vast agricultural and mercantile populations linked with his interests.

"6 The people can protect themselves by relinquishing their lands, and would certainly do so if the unusual course proposed by Sir Richard Temple were adopted. Such action on the part of the ryots would be alike injurious to themselves and to the State."

Proceedings of the Board of Revenue, Madras, dated 1st March 1877.

THE Board have passed orders as to the remissions to be granted; but the amount of revenue at stake being enormous, they deem it necessary to issue the following instructions for the guidance of settling officers at the approaching "jamábandi."[1]

2. Great care should be exercised in checking the disposition of tahsildars and subordinate revenue officers to recommend wholesale remissions. "Nunja" remissions should be dealt with according to the remission rules. "Panja" remissions should not be granted where one crop of any kind has been obtained, even though it be not the principal crop of the year. In the southern districts, a large extent of land has under the early rains yielded a crop below the average, and the prices of agricultural produce are now so great that a single crop will enable the ryot to pay the assessment. Percentage remissions for partial failure of crop have been sanctioned on the Collectors' recommendations in some districts; but it is the Board's desire that the rates should be considered as maxima, and not be granted as a matter of course. The rates must be adjusted by the settling officers to the condition of the country and the circumstances necessitating indulgence to the people; and it must be remembered that in settled districts a large reduction is already made, to allow for vicissitudes of season. No remission should be granted when the crops have yielded 3-8ths of an average crop. The principle of dealing with claims with reference to whole villages or tracts must be carefully carried out. As regards "*panja waste,*" care must be taken to exclude from remission lands usually left waste for pasture and other purposes, which are known in some districts as "mamul waste."

3. Collectors should furnish to the Board, after the jamábandi of each taluk is finished, in advance of the settlement report, a report showing the amount of remission for waste, "shavi," and partial loss in dry and wet lands respectively in the taluk, and to note in the reports the average remission granted in the three previous faslis.

Mr. C. E. Bernard, in his memorandum of the 28th April 1877, says:—

"One of the points which attracted the attention of Sir Richard Temple in January 1877 was the disposition of Revenue Officers in Madras and Bombay to remit so much of the land revenue[2] as could not be collected this season from the ryots. The higher revenue authorities of Madras and Bombay were opposed to the system of suspending any of the land revenue that the ra'iyats could not pay this year.

"2. In permanently-settled Bengal, it had been the almost unvarying rule not to remit or suspend any land revenue in consequence of vicissitudes of season. In provinces of the Bengal Presidency, where the land revenue was settled for a term of years only, such as Orissa, the North-West Provinces, and the Panjab, it had been usual to grant certain suspensions of land revenue in the most affected tract. In subsequent years the greater part of the suspended demand was collected; but a small[3] part was remitted in extreme cases.

"3. Sir Richard Temple drew the attention of the Government of India to this, and recommended that no remissions of land revenue should be made, but that the land revenue demand

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[1] *Jamábandi* signifies verifications of holdings and apportioning of remission.

[2] The Madras Government, under telegrams:—
21st March 1877 }
9th April " } for the Government of India,
20th " " }
surrendered the papers relating to remissions and suspensions of land revenue to Sir R. Temple.

[3] For the earlier famines, the subjoined figures are correct:—

	Total land revenue remitted.		Total land revenue demand of the afflicted area.
North-West Provinces famine of 1803 - -	80 lakhs (approximate)	...	156 lakhs.
North-West Provinces famine of 1837-38 - -	90 "	...	850 "
North-West Provinces and Panjab famine of 1860 -	10 "	...	420 "
Bengal and Bahar famine of 1866 - -	——	...	240 "
(The figures for Orissa are not accessible.)			
North-West Provinces famine of 1869 - -	2¼ lakhs	...	128 lakhs.
Central Provinces famine of 1869 - -	—	...	30 "
Bahar and Bengal famine of 1874 - -	—	...	300 "

I do not lay stress on the precedent set by permanently-settled Bengal, where the land revenue bears a comparatively small proportion to the rental or the produce of the land. But the example of the North-West Provinces and the Panjab is to the purpose; for the land revenue there presses as hardly on the land as it does under present arrangements in Madras, and the profits of the land have in some cases to be divided among sets of right-holders, instead of going straight to the ra'iyat, as in Madras.

Though in 1837-38 considerable remissions had to be given, yet the great improvement in the condition of the landed classes during the last 40 years has enabled them to make good, from the surplus of favourable seasons, the arrears of land revenue on account of years of drought.

should whenever necessary be suspended, it being left for future decision how much ought to be remitted and how much collected. The Government of India decided that the matter should be left to the discretion of the local Governments.

"4. The Madras Government held that it was inexpedient to substitute suspension for remission of revenue in a disastrous season. The Board of Revenue estimated that the remissions of land revenue, on account of the recent failure of crops, would reach 1,430,000*l.* The total ra'iyatwari land revenue of the twelve districts affected by the drought is Rs. 1,92,00,000. No remissions are proposed for permanently-settled (zamindari) estates, the land revenue on which is distinct from the ra'iyatwari land revenue. In some districts the Collectors have postponed the jamábandi in case the May showers might restore hope and credit to the ra'iyats.

"5. * * * * * * * *

"6. The land revenue of Madras is derived from—

		Rs.
1 Permanently-settled quit rent and zamindari estates paying		69,00,000
Irrigated lands paying land revenue at "wet" rates		1,70,00,000
Lands unirrigated, or irrigated only from wells, paying at "dry" rates . .		1,69,00,000
Total . . .		4,08,00,000
Add two unmeasured West Coast districts	30,70,000	
" miscellaneous land revenue	26,50,000	
		57,20,000
GRAND TOTAL . . .		4,65,20,000
Deduct average remissions granted in ordinary years		12,00,000
Average land revenue of a good year for the Madras Presidency .		4,52,20,000 or 4½ millions sterling.

"7. Over nine districts out of the twenty-one which composed the Madras Presidency, the land revenue has been settled for 30 years. The land has been surveyed; holdings have been demarcated; the incidence of the land revenue has been made more equable; the Government has engaged not to demand land revenue at the settlement rates only for 30 years. But the ra'iyat (or peasant-proprietor) has not bound himself to pay the revenue for 30 years; he can, in the settled districts, throw up his land when he likes. In the districts to which the 30 years' settlement of the land revenue has not been extended, the ra'iyats are liable to have their land revenue altered from year to year. They can sell or mortgage their holdings; and their title as peasant-proprietor is almost as good as a ra'yiat's title in the settled districts. The land revenue in parts of these districts used formerly to press unequally, and the people were poor. But during the last 15 years the position of the Madras ra'iyat, even in the districts which are not settled for 30 years, has very greatly improved: the revenue rates are equable; the high rates of Rs. 27 or Rs. 30 per acre have disappeared, and, generally speaking, the land revenue demand presses as equally in the unsettled as in the settled districts.

"8. In both the settled and the unsettled districts the land revenue on ra'iyatwari lands is separated into—

(*a.*) The demand from "dry" or unirrigated land.
(*b.*) " " "wet" or irrigated "

The demand on 'wet' lands includes revenue from the land, and rent for the water which Government supplies for irrigating. In two districts the land revenue is kept apart and distinct from the water rent, but over the rest of the presidency the land revenue and water rent are assessed together. Land fertilised by rain-water only, or irrigated from wells, pays revenue at 'dry' rates. This concession was granted 15 years ago. Since then, the number of irrigation wells has greatly increased; and the petty proprietors of Madras have a great advantage over their fellows in most parts of India, where land watered from wells is reckoned, and assessed to revenue, as 'irrigated' land.

"There is some difference in the rules under which remissions of land revenue on 'wet' lands are granted in the settled districts, as compared with the rules for unsettled districts. In districts of both classes the full land revenue is remitted on 'wet' lands whereon the crop may have been totally lost owing to deficiency or excess of water. But in the settled districts no remission is granted for the partial loss of 'wet' crops, whereas in the unsettled districts partial remission is granted for partial failure of 'wet' crops. The Madras revenue rules provide that on 'dry' lands no remission of assessment shall be granted save 'in very exceptional years, under very exceptional circumstances.'

"9. A certain percentage of remission (25 or 50 per cent. on the demand) is sanctioned for either the 'dry' or the 'wet' lands of a whole tract, and thereupon all the lands ('dry' or 'wet') of that tract enjoy the sanctioned remission in full, irrespective of the excellent yield the ra'iyats may have had in a year of high prices, or by irrigation from wells. A ra'iyat[1] with 2 acres of 'wet' land and 4 acres of 'dry' may have a bumper crop on his 'dry' lands, while his 'wet' crop is lost by flood or by the bursting of a tank. Or his 'wet' land may have yielded a capital crop, while his 'dry' has failed by the shortness of the early rain (south-west monsoon)."

* * * * * * * *

[1] It has been occasionally said that a Madras ra'iyat does not ordinarily hold "wet" and "dry" land together, and that while one ra'iyat's holding is all "wet," another's is all "dry." This may be the case in Bellary, where the "wet" lands are small, barely 6 per cent. of the cultivated area. But in other districts, outside the river deltas, it is common for a ra'iyat to hold some "wet" and some "dry" land, or to have a part of his "dry" land irrigated from wells. Mr. Dalyell, paragraph 71, Famine Memoir of 1866, takes a representative Madras ra'iyat as holding 6 acres of "dry" land and 2 acres of "wet" land, or 8 acres in all.

"14. As it has never been the practice in Madras to grant suspensions of the land revenue, so all the land revenue not remitted at the 'jamabándi[1]' of each year is levied and collected immediately. Processes for the collection of the unremitted arrears issue at once, and the ra'iyat has no opportunity of making the land revenue arrears of a bad year from the profits of a good year. In other parts of India it is held to be fairer to the public treasury, and better for the landed classes, to suspend the greater part of the land revenue in a year of drought, and to let the landholders make good the arrears from profits of future years.

"15. The grounds on which it was held inexpedient to suspend, instead of remitting, a portion of the Madras land revenue were set forth in the Hon'ble Sir William Robinson's minute of the 31st January, and in Mr. Secretary Carmichael's letter No. 576, dated the 9th February 1877. These reasons are—

(a.) The Government is under an implied obligation to supply water for irrigating "wet" lands; and if Government fails so to supply the necessary water, it cannot demand, either now or in future years, any land revenue of lands which by failure of irrigation have yielded no crop.

(b.) The theory of the land revenue in Madras is that the State shares the produce of the land with the ra'iyat, though the State share has been commuted for a cash payment; and, if there be no produce on the land, there is nothing for the State to share.

(c.) The Madras ra'iyat is heavily taxed, and has no accumulations wherefrom to make good the land revenue due for a year of drought.

(d.) Most of the Madras ra'iyats have small holdings, and could not pay the arrears of one year out of the surplus of the next. Moreover, they could, and would, throw up their holdings if called on to pay the arrears on account of drought.

"16. As to the first point, if no water is supplied for irrigation, the share of the land revenue which is reckoned as water-rent should be remitted. But it does not follow that the share of the land revenue debitable to the land should be remitted. In other parts of India the canal revenue is remitted on lands which the canal-water may have failed to reach; but the land revenue is collected. The land revenue of the North-Western Provinces is about 1¾ rupees per acre; while the canal revenue is 3½ rupees per acre. If the canal water fails, the canal rent is remitted; but the land revenue is paid.

"17. As to the remission of land revenue due with respect to 'dry' lands, Sir Richard Temple specially remarked. The remissions on the 'wet' assessment will hardly reach 50 lakhs out of the total of 143 lakhs to be remitted under the Board's estimate.

"18. As to the second argument, the principle that the State is entitled to a share of the produce of the land, underlies the land revenue system of India. The theory of the Madras settlement and the rules of the Madras Revenue Board do not altogether agree. The Settlement Officers deduct 20 per cent. from the estimated value of the average produce before they assess the money value of the State share in it; and the settlement rules state that this deduction is made to meet losses by vicissitudes of season. The Board's rules provide that no remissions shall be granted on 'wet' lands for *partial* failure of crops in settled districts; nor on account of failure of 'dry' crops, save under very exceptional circumstances.

"In Madras, the principle which underlies the land revenue system is not pushed to its logical conclusion, and, indeed, is in practice little observed. Whether in a famine year this principle need bind the Government to remit all, or nearly all, its revenue on drought-stricken lands, is questionable.

"19. As to the third argument, detailed statistics of Madras districts exist only for the ra'iyatwari tracts; so that it is not possible to ascertain the incidence of the land revenue per acre for the whole presidency. The pressure of the land-tax must be gauged, not only by the rate per acre, but also by the rate per head of the population; for the profit per acre to the farmer may be larger on the rich irrigated lands of Tinnevelly and Cuddapah, paying Rs. 9 and Rs. 7 an acre, than on the light 'dry' lands of Bellary, paying an average of 10 annas per acre.

"20. Figures for instituting a comparison between the incidence of the land tax and that of the land revenue are available from published reports :—

	Incidence of Land		
	Revenue per acre of cultivated land.		Tax per head of the total population.
	Rs.		Rs.
Madras, including water rent	1·75	On ra'iyatwari lands only.	1·4
" excluding "	1·1		1·03
North-West Provinces, including water rent	1·88		1·44
" " excluding "	1·72		1·32
Oudh	1·8		1·3
Bombay (including Sind)	1·17		1·72
British Burma	3·0		2·55
Panjab	1·38		1·14

[1] "Jamábandi" (attestation of holdings) is the term given to operations conducted by a Madras Collector and his establishment every year. When the sowings are done, the village officers compile returns showing all the lands cultivated by each ra'iyat. When the crops are reaped, additional entries are made to these returns, showing what crops may have failed, and why. The taluk revenue officials then test these papers, and report how much land ("wet" or "dry") each ra'iyat has cultivated, and what land revenue he has paid and has to pay. These returns are then tested on the spot by the Collector or his Assistants in the presence of the villagers interested. At the time of attestation the Collector decides what remissions of revenue are to be given for the year; hears all protests against the entries in the papers, and decides such questions as may arise. The questions generally refer to ra'iyats having cultivated lands to which they were not entitled; to having encroached on their neighbours; and having failed formally to surrender their lands.

Panja lands are those assessed to land revenue at "dry" rates, and *nanja* at "wet." *Shavi* lands are those on which by drought, the crop has withered.

"21. It will be seen that even though the State has provided artificial irrigation for 4,000,000 of acres in Madras, as against 1,100,000 acres in the North-West Provinces, yet the incidence of the combined land-tax and water-rent in Madras is lighter than in the North-West Provinces, and lighter than the incidence of the land revenue proper in Oudh and Burma, where the State has provided no irrigation. If the water-rent in Madras be taken at Rs. 3 per acre (less than the average charge for canal water paid in the North-Wertern Provinces), the land revenue of Madras would stand—

	Rs
Land revenue and water-rent	4,50,00,000
Deduct water-rent	1,20,00,000
Balance, or land revenue proper	3,30,00,000

and the incidence of the land-tax (proper) in Madras would be Rs. 1·03 per head of the population, or the land-tax would fall more lightly on the land and on the population of Madras than it does on the land and population of the North-West Provinces, of Oudh, of Bombay, of the Punjab, or of Burma. The land-tax in Madras is heavier on the land and on the people than the land-tax of permanently-settled Bengal on its land and people. But Bengal taxation must always compare unfavourably with that of the rest of India.

"22. As to the fourth argument, it seems that the Madras ra'iyat was poor and pressed by the land-tax in the first half of the century; but some of the older Madras revenue officers say that his position has improved greatly since those days. The revenue rates have been revised and equalised; the rates of Rs. 27 and Rs. 33 an acre, formerly demanded, are unknown. A ra'iyat has to pay at 'dry' revenue rates for the land he irrigates from his wells; and there has during the last 20 years been an enormous rise in the prices of all agricultural produce, without any commensurate rise in the land revenue rates. The total land revenue of Madras, due to the spread of cultivation and to the great extension of irrigation has, indeed, risen, rather than to any enhancement of the land revenue rates.

"23. The facts and arguments regarding the great improvement of the Madras ra'iyat are well put by Mr. Dalyell in his Famine Memoir of 1866. He shows that the money value of a ra'iyat's crop was in 1866 nearly double that in 1856; and that the area of ra'iyatwari cultivation rose from ten millions of acres in 1856 to sixteen millions in 1866.

"24. The Collectors of Kurnul and Chingleput alone, of the Collectors, described their ra'iyats as poor. It seemed to be the opinion that in other districts the ra'iyats were in ordinary years well off. Nowhere in Madras were heard accounts of any indebtedness and ruin, such as are told regarding the peasants of Sholapur, Puna, and part of Khandish. As to the ordinary condition of the ra'iyats of 'dry' lands in Bellary, Kurnul, and Cuddapah, no estimate could be formed. But no one who has seen the splendid cultivation of the delta country in Tinnevelly, South Arcot, Trichinopoly, and Tanjor, can regard the peasant-proprietors of those tracts as heavily taxed, when they pay a combined land and water rent of Rs. 5 to 8 an acre for fields yielding two and three crops a year. Nowhere in India, save in the best parts of the delta districts of Eastern Bengal, can such rich cultivation as that which covers the irrigated lands in the delta districts of Madras Presidency be seen.

"25. It is understood that Rs. 400 and Rs. 500 an acre is no uncommon price for irrigated lands in the delta districts. The daily wage of an unskilled labourer in Madras ranges from 3 annas to 4 annas, or 50 to 80 per cent. higher than in the North-West Provinces, the Punjab, or Behar.

"26. A Madras ra'iyat can maintain himself and his family on a holding of nine acres of 'dry land,' or on a holding of four acres of 'wet' land. His surplus profits per acre would be greater than in the case of a large holding of 25 to 30 acres, whereon hired labour was employed. In Madras there are a number of petty ra'iyats whose holdings range from 1 to 3 acres; and in ordinary cases such holdings do not suffice to support the ra'iyat and his family, who work for hire during a part of the year. The making good the arrears of a single bad year (Rs. 3 or 4 in all) would not press very hardly.

"27. In Northern India the land revenue settlement binds not only the Government, but also the landholder, for the term of its duration. But in Madras the settlement binds the Government not to demand more than the fixed revenue rate, while it permits the peasant to surrender his holding any year he chooses. The land in Madras is a valuable possession; the land revenue moderate; the soil good; markets are near; means of communication good. It may be doubted whether any considerable number of ra'iyats would resign their lands on being asked to make good the arrears of a bad year from the surplus profits of bumper crops.

"28. Similar apprehensions were expressed in 1866-67. In that year the Commissioner of Assam, acting under the orders of the Government of Bengal, raised the land revenue 70 per cent. all round. The Assam peasants held their lands direct from Government on yearly leases. It was predicted that the sudden enhancement of the land revenue would cause them to surrender their holdings. Many thousands resigned their holdings, but after they had filed their resignations they returned home and tilled their lands as before. The enhanced revenue was paid, and the area of cultivation hardly decreased at all.

"29. There is nothing so special in the condition of the Madras ra'iyat as to make it expedient for the State to grant him remissions of land revenue under circumstances which entitle landholders in other parts to suspensions only of land revenue.

"30. If all the costs of a famine, including losses of land revenue, are to be borne by the province concerned, other provinces of the empire have less interest in the amount of land

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DEMAND, COLLECTION, AND BALANCE OF FASLI 1286, ENDING 30TH JUNE 1877: IN RUPEES.

AND.	Land Revenue Collections and Remissions.												Percentage of the Balance to the Demand.
	Collections.			Remissions.			Total.			Land Revenue Balance.			
Total.	Arrears.	Current.	Total.	Arrears.	Current.	Total.	Arrears.	Current.	Total.	Arrears.	Current.	Total.	
13,53,577	1,03,431	10,95,651	11,99,082	6,798	...	6,798	1,10,229	10,95,651	12,05,880	54,690	93,007	1,47,697	10·9
14,64,722	65,313	12,90,185	13,55,498	3,687	...	3,687	69,000	12,90,185	13,59,185	11,917	93,620	1,05,537	7·2
46,23,460	1,77,746	40,36,723	42,14,469	59,402	...	59,402	2,37,148	40,36,723	42,73,871	2,15,011	1,34,578	3,49,589	7·5
38,84,987	1,38,163	29,14,896	30,53,059	8,294	...	8,294	1,46,457	29,14,896	30,61,353	1,40,595	6,83,039	8,23,634	21·2
17,45,361	4,41,943	4,21,529	8,63,472	72,064	...	72,064	5,14,007	4,21,529	9,35,536	2,32,475	5,77,350	8,09,825	46·4
9,32,473	1,01,539	1,32,482	2,34,021	3,496	...	3,496	1,05,035	1,32,482	2,37,517	71,938	6,23,018	6,94,956	74·5
9,45,354	79,278	2,18,393	2,97,671	8,035	...	8,035	87,313	2,18,393	3,05,706	58,041	5,81,607	6,39,648	67·7
7,40,595	19,814	78,506	98,320	3,778	...	3,778	23,592	78,506	1,02,098	10,836	6,27,661	6,38,497	86·2
1,02,037	8,250	64,103	72,353	2,609	...	2,609	10,859	64,103	74,962	13,154	13,911	27,065	26·5
9,77,942	1,69,774	1,83,446	3,53,220	43,664	...	43,664	2,13,438	1,83,446	3,96,884	1,51,504	4,29,554	5,81,058	59·5
19,93,028	1,73,961	5,41,777	7,15,738	18,063	...	18,063	1,92,024	5,41,777	7,33,801	2,40,004	10,19,223	12,59,227	63·2
31,52,476	5,00,836	15,11,505	20,12,341	7,144	...	7,144	5,07,980	15,11,505	20,19,485	44,496	10,88,495	11,33,991	36·0
42,27,212	1,66,678	36,77,421	38,44,099	1,380	...	1,380	1,68,058	36,77,421	38,45,479	40,086	3,41,647	3,81,733	9·0
15,45,415	52,155	13,21,171	13,73,326	5,992	...	5,992	58,147	13,21,171	13,79,318	19,676	1,46,421	1,66,097	10·7
23,66,345	4,93,647	2,74,383	7,68,030	1,158	...	1,158	4,94,805	2,74,383	7,69,188	62,342	15,34,815	15,97,157	60·7
28,65,555	4,15,743	18,54,771	22,70,514	1,975	...	1,975	4,17,718	18,54,771	22,72,489	21,953	5,71,113	5,93,066	20·7
25,64,907	2,22,557	10,17,509	12,40,066	5,519	...	5,519	2,28,076	10,17,509	12,45,585	26,403	12,93,919	13,19,322	53·5
65,552	8,151	45,380	53,531	...	...	...	8,151	45,380	53,531	874	11,147	12,021	18·3
22,36,036	2,42,504	4,46,738	6,89,242	17,310	...	17,310	2,59,814	4,46,738	7,06,552	1,55,513	13,73,971	15,29,484	68·4
13,86,009	81,010	12,23,792	13,04,802	80	...	80	81,090	12,23,792	13,04,882	9,625	71,502	81,127	5·9
19,68,914	63,700	17,69,521	18,33,221	11,742	...	11,742	75,442	17,69,521	18,44,963	68,740	55,211	1,23,951	6·3
411,41,947	37,26,193	2,41,19,882	2,78,46,075	2,82,190	...	2,82,190	40,08,383	2,41,19,882	2,81,28,265	16,48,873	1,13,64,809	1,30,13,628	31·6

The Government of India, in its letter No. 856, of the 20th September 1877, to the Government of Madras, stated:—

" 2. The Viceroy gathers from the statement:—

	Lakhs of rupees.
(a.) The land revenue current demand for 1876-77 was only	355
Compared with an average current demand of the three previous years of ...	449
(b.) The total collection, current and arrears, for 1876-77 was	278
Compared with a previous average of	449
(c.) The actual remissions of 1876-77 are	3
on account of the arrear demand, no remissions having yet been granted on the current demand.	
(d.) The balances of 1876-77 are	130
Compared with a previous average of	60

3. It appears that the deficiency in the year's* land revenue collections amount to 449 minus 278 lakhs, or 171 lakhs. This total is in excess of previous estimates. If more than 45 lakhs (out of the outstanding balance of 130 lakhs) should be collected hereafter, the deficiency of the year will be reduced; if less than 45 lakhs, the deficiency will be increased.

* July 1876 to June 1877, inclusive.

4. The partial failure of the south-west monsoon of 1877 has made the collection of arrears difficult, and may necessitate a reduction of the current year's demand below the average of previous years. His Excellency the Viceroy has confidence that the Government of Madras will not permit sacrifice of revenue, either by reduction of the demand or by remissions, beyond what is necessary.

The Government of India, in its letter No. 973, of the 24th October 1877, to the Government of Madras, stated:—

" 3. The Viceroy and Governor General in Council gathers from the returns of 'area cultivated and revenue collected,' that in most districts the area sown this year is larger than the average of previous years, though the revenue collections have been lamentably short. If, however, this large area of crop turns out well, the Government of India would hope that the arrears of last year, and also the full demand of the current year, may be collected. An expression of the views of the Government of Madras on this important subject might be conveyed to the Board of Revenue.

" 4. The punctual collection of the land revenue of the current year is of the utmost importance to the finances of the Empire; for the expenditure and loss of revenue during the famine (not less than eleven millions) has seriously reduced the balances of the Empire.

" 5. The Governor General does not desire harsh measures to compel the people to pay land revenue when they have no money and no credit. But his Excellency in Council believes that, with the crops now on the ground, and with moderately high prices, the Madras ra'iyats will this year be able to bear their share of the country's burden.

" 6. To show that the Government of India is not asking of Madras more than it receives from other provinces, I am directed to forward copies of the letters marginally noted.* Notwithstanding the extensive failure of the autumn crop of 1877, the Governments of the Punjab and North-Western Provinces are expected to collect punctually the greater part of the autumn instalments of land revenue; not a rupee of the demand will be remitted, unless circumstances change for the worse. In the Bombay Presidency, where the land revenue is collected directly from petty occupiers, as in Madras, 88 per cent. of the land revenue demand of 1876-77 (the famine year) had been collected by the end of August, and less than one per cent. remitted. An assurance has been received from the Bombay Government that, if the winter and spring crops of the present season be good, the whole land revenue demand of 1877-78 will be collected.

* Famine Department letter No. 957, dated 22nd October, to the Government, North-Western Provinces.
Bombay Government letter No. 6276, dated 19th October, to the Famine Department.

" 7. The Governor General would ask that, as soon as the Government of Madras is able to form an estimate, he may be favoured with an estimate of the amount of land revenue that will probably be collected in the Madras Presidency before 1st June 1878, on account of—

(a) The arrears of the year 1876-77.
(b) The current demand of the year 1877-78."

THE SUBSISTENCE RATION IN TIMES OF FAMINE.

Sir Richard Temple, in his minute of the 7th March 1877, on the reduced scale of wages, said:—

I have considered the letter from Surgeon-Major Cornish, Sanitary Commissioner of Madras, in which he records professional objections to the reduced scale of ration directed to be adopted in Resolution of 31st January 1877. The point is the allowance of 1 lb. avoirdupois per diem to an adult labourer (not performing severe task work), *plus* half anna in cash.

2. Into the professional argument I cannot enter, further than to note that, while scientific theories of great value on the subject of public health are of modern growth, the Indian population have lived for centuries in disregard of them; and that at the present date the poorer classes, in countries more civilised than India, do not obtain, either in food, lodging, or ventilation, the amount declared by scientific men to be necessary. I would further note that Dr. Cornish's observations refer to Europeans living in a cold climate (where waste is greater), largely exceeding the Natives of India in average weight, and therefore requiring more food. The Edinburgh inquiries are not applicable to the poorer classes of the Madras Presidency.

4. Dr. Cornish objects that a diet sufficient to sustain a man's life when at rest may be inadequate when employed on tasks "necessitating severe physical exertions," and that "a man engaged on task labour paid at the rate of 1 lb. of grain and half an anna in cash" cannot "procure a sufficiency to eke out the defects of his grain ration." The evidence of relief camps in the Madras Presidency shows that a Native at rest can gain flesh on a pound a day.

I was informed at Vellor that indigent adults, admitted to the relief camps in consequence of their inability to work, have improved on a ration of a pound a day. Dr. Fox, Civil Surgeon, and Captain Harris, the Relief Officer, were agreed on this point.

5. He says that the "combined testimony" of numerous observers showed that "the maximum grain allowance of a man in health and in work was not less than 24 ozs." or 1½ lbs.

6. He assumes that by the new scale a man cannot obtain 1½ lbs.; but at present prices throughout the greater part of the distressed district a man can, with the half anna which he receives in cash, buy an extra half pound of grain a day and still have a small margin for condiments—that is, he earns sufficient to allow him the minimum quantity requisite to keep him in health. More than this, it is not in the power of Government to do.

7. His argument is, that the rate of wages (1 lb. in grain with half anna in cash) "will not permit of severe labour or task-work," and is insufficient for men "employed on tasks necessitating severe physical exertion, thereby implying that the bulk of the relief labourers are employed on such tasks. There are very few out of the thousands employed by Government who do nearly as much work as they do in ordinary seasons for their own support. In short, the reduced scale (1 lb. and half anna) is not applied to persons undergoing severe physical exertions, but to persons who are on light work. In many places task-work has not yet been introduced; in many others it is only nominally enforced, and where it is in actual operation the amount of labour exacted is light.

8. In the Madras Government Orders of 31st January 1877, two rates of working pay are laid down. All persons who do work, amounting to 75 per cent. of the Public Works rates, receive 1lb. of grain and one anna in cash; those who receive a pound of grain, *plus* half an anna (alone referred to by Dr. Cornish), are only required to render task-work at half the Public Works rates. Now, the Public Works labourers are paid by piecework, and no definite task is asked for; they do as much or as little as they like, and are paid accordingly.

9. Those who undergo severe physical exertions do receive wages equal to 1½ or 2 lbs. a day, which is what he recommends. It is only for those who do not undergo such exertion that the lower scale recommended by me, and ordered by the Government of Madras, is intended. Persons doing less work than ¾ cubic yard per diem can live on less, so while the second class labourer does only ½ cubic yard of earth-work daily, he receives in return 1½ anna. But the Public Works rate is not a task but a scale, and ordinary labourers are not content to earn two annas daily by excavating one cubic yard, but, as a matter of fact, earn much more. I was informed by Mr. O'Shaughnessy, the District Engineer of Nellor, that some of the gangs at work on the East Coast Canal were earning five and even six annas a head daily.

10. The work of such relief labourers could, therefore, scarcely be described as "severe physical exertion," even if it were fairly rendered; and in many, if not in most districts, it is still little more than nominal.

11. The objection to the new scale is formulated by the phrase "a full day's wage (something more than the 1 lb. and the half anna) for a fair day's work." But the phrase postulates that there is a fair day's work, which is just what the vast majority of the relief labourers do not render. Therefore they are not entitled to, and do not physically need, the full day's wage. Where they render a really fair day's work, there they receive under the new rules more than the reduced scale.

12. The rates were recommended as experimental, and if they shall be found insufficient, they may be increased; but it appears to me that they have not yet been found so, and that Dr. Cornish argues from a mistaken premise. If the poor people were found to be falling off in condition, I would recommend an alteration in the rate.

13. I must repeat that payments are not made in grain, but in cash. A pound of grain has been estimated as costing one anna, and in no cases have the wages paid been less than an anna and a half, the anna being the supposed equivalent of a pound of grain, and the half anna being available to eke out the ration. An anna, however, represents in most parts of the worst districts more than 1lb. of grain. At Adoni, for instance, where nearly 50 per cent. of the population were recently on work, one anna will purchase about 1¼ lbs. of cholum, the staple food of the people, leaving each labourer half an anna to buy pulse, condiments, &c.

14. It is impossible, over a large tract of country affected with scarcity, where prices vary in every district, to lay down any rule not open to local criticism and inapplicable to certain localities, but the scale appears to be sufficient to yield the people that subsistence which Government can afford.

15. In laying down the minimum scale, it was intended that each labourer should be able to consume his own wages, and not have to share them with other persons of his family. These should either work, or if unable be admitted to gratuitous relief. The case of young children from one year to seven years, who accompany their parents to the works, has already attracted my attention, and I have recommended in a State minute that subsistence allowance be granted.

16. The inquiry as to whether the reduced scale of wages is sufficient to enable the people to tide over the next few months without serious danger to themselves should be decided, not by pre-conceived physiological theories, but by patient practical examination of the people themselves, with a view to ascertain whether there is, in fact, any change for the worse in their physical condition under the new scale, as compared with their average condition. Having carefully inspected in this Presidency, thousands of relief labourers, I give it as my opinion that with few exceptions, not as a rule traceable to insufficient relief wages, the physical condition of the labourers is as good as in ordinary years. If I find that the new scale of wages seems insufficient to maintain the people in health, I will be the first to say so.

17. It is not possible to determine *à priori* on scientific data what amount of food is necessary to sustain the particular classes who come to our relief. The point is, whether in ordinary times they get more than 1 lb. a day for a male adult. This is an economic question to be determined by calculating the rate of wages in the rural districts—not the wages of trained professional labourers employed by public bodies, nor those of stalwart men of the professional class of workmen, but those of men of lesser physique, such as the village poor—and by taking the prices of grains in ordinary years. I apprehend that the labouring poor in rural localities can hardly get more than 1 lb. a day in ordinary times. If this be so, the reduced scale must be sufficient on the Government relief works.

Sir Richard Temple, on giving subsistence allowance to children of relief labourers, stated:—

2. The new scale of wages is a minimum allowance for one person, and it is evident that if a labourer has to divide his wages with other persons they will not suffice. All who are able to do light work can earn subsistence on the works, and those unable to work are entitled to gratuitous relief, so that it is only the young children who have to be considered. These cannot be separated from their parents, whom they accompany to the works, and have to depend for food on some share of the family earnings. When several members of a family are employed, it is probable that one or two children could be sustained; but where there may be only one or two bread-winners, and perhaps three or four children, a supplementary allowance will be necessary.

4. A child of six requires more food than a child weaned, and it might be expedient to have rates for children of different ages: one rate for babies from one to three years, and another for children from three to seven, but I think that a fixed rate would be so open to abuse, that it would be better to leave the amount to be granted to the local officers, subject to a maximum limit not exceeding half the rates paid to working children.

Sir Richard Temple, in his minute of the 14th March 1877, stated:—

In my minute dated 6th March, I refrained from commenting on the scientific argument used by the Sanitary Commissioner of Madras, Dr. Cornish; but I have now to make the following remarks:—

2. Dr. Cornish's scientific propositions are:—

That (para. 4) the carboniferous and nitrogenous principles of food should be as 3 to 1.

That (para. 6) according to scientific investigators, 140 to 180 grains of nitrogen are required, in a state of rest, to oil the human machine at rest.

That in ordinary labour 300, and under great physical exertions 500 to 600, grains of nitrogen will be necessary.

That if such quantities are not provided under the corresponding circumstances, "the body must prey on its own tissues."

That (para. 13) "as to this question of a pound of grain being enough, we should never know the result until the mischiefs resulting from a deficient supply of nitrogenous food have gone so far that a retracing of our steps would be powerless to save life."

4. In the Madras Manual of Hygiene, published in 1875, under the orders of Government, the main parts of Dr. Cornish's theories are adopted. It is stated, (page 96):—

"The unavoidable internal work of the body of an adult human being, or the movements necessary for respiration, circulation, and digestion, require a minimum of 138 grains of nitrogen in 24 hours for their maintenance. In a state of idleness of mind and body, the least amount compatible with health may be stated as 200 grains for a man and 180 for a woman. In the ordinary circumstances of the soldier, the artizan, the field-labourer, and the prisoner in most of our jails, 300 grains will be a fair minimum. Very great physical exertion will demand 500 grains, or even more."

5. Sir Robert Christison's theory, founded on careful experiment on Scotch labourers, is adopted by the Sanitary Commissioner, and by the author of the Madras Manual of Hygiene, as applicable to the natives of Southern India. On this Dr. Cornish's whole argument is based, and in the Manual it is expressly applied to the "prisoners in most of our jails."

6. My opinion that 1 lb. a day of grain might suffice for a relief labourer, together with some allowance for condiments, was not based on scientific theory;

it was founded on probabilities deduced from the condition of the poorer classes in ordinary times, and on the results of experience. It was not put forth with absolute confidence. It was to be subjected to trial, not by theoretical data, but by the observation of its actual results.

7. Dr. Cornish protests against this opinion as—

"in direct contradiction to the testimony of scientific observers in every country in which this question of the quantity and variety of food essential to keep a labouring man in health and strength has been investigated."

8. Certainly this opinion was not based on scientific evidence, taken as proved on experiments made on men of different race and habits, living under different circumstances, in different climate, and exceeding by a third in average weight the people to whom the results of the experiments are applied. For administrative and financial purposes I should not base my recommendations on such data, inasmuch as the question must be one extremely difficult of scientific ascertainment, and in respect to which the best conducted experiments, made in different parts of the world, might lead to varying results.

9. In the appendix, pages 361 to 380, are given the whole range of Madras dietaries for soldiers, sepoys, and prisoners, military and civil, under various circumstances, in sickness and in health. The quantity of each food is given, together with an analysis of its composition, and the proportion of each of the physiologically essential elements.

10. Had those quantities corresponded with or approximated to the amounts declared necessary, it would have been open to me to say that the dietaries have been decided by European committees by the advice of Sanitary Commissioners; that they are intended for persons from whom full work is demanded, and who receive in return, not a subsistence allowance, but a full ration; that rations are fixed on a liberal scale, so as to suffice for persons who consume more than the average; that it is matter of common reproach, both in this country and in England, that prisoners are better fed than paupers, and that it is absurd to suppose that the poorer classes get as much to eat as prisoners or soldiers, or that they cannot live on much less.

11. An examination of the dietaries in the book itself proves not only that the theories advanced by the Sanitary Commissioner have little application in practice, but that the reduced scale of wages suffices to supply the relief labourer with more than sufficient nitrogen and carbon to keep him in health. They prove that as regards Natives of this country, the carboniferous bear to the nitrogenous elements of food the ratio of about 7 to 1, instead of 3 to 1, as in the English dietaries [in the ration of the sepoy on foreign service the proportion is 10 to 1, 26·70 oz. to 2·68 (page 379)]; and as the absolute weight of food taken daily by Natives and Europeans is probably about the same, the amount of nitrogen required by Natives must be much less than that required by Europeans; and when the diets are examined, this is found to be the case. The Madras sepoy, ordered on foreign service, during which he is called upon to undergo severe physical exertion, receives a full ration from Government. According to the theory, he requires a minimum of 300 grains of nitrogen when performing ordinary duties, but when undergoing severe labour he needs 500 or 600 grains. As a matter of fact, he gets (page 379) only 178 grains, little more than half the minimum required, and only about a third of what is declared necessary to support him when doing strenuous work. This case makes very strongly against Dr. Cornish's theory.

12. The British soldier, to whom the theory should apply, requiring, like the sepoy, 300 to 600 grains under like circumstances, receives 242 grains of nitrogen in his full ration, or 25 per cent. less than the minimum required to keep him in health when in garrison, and less than half what he ought to have when on service. When he is in prison or at sea, he receives only a reduced ration, and though the details of the two rations are altogether different (Madras Manual, pages 364 and 369), the amount of nitrogen contained in each is identical (155 grains), about half of the amount declared to be the minimum necessary to maintain him in health, a quarter of what he should have when on service, and less than the least amount compatible with health in a state of rest as laid down in the quotation from the Madras Manual already cited.

13. The British soldier is not reduced by a diet containing 155 grains of nitrogen. His average weight is probably a third greater than that of the average relief labourer, and it seems to follow that the relief labourer could be maintained in health by the same proportion, $\frac{2}{3}$ of the quantity of nitrogen required by the European soldier. But 1 lb. of the cholum contains, according to Dr. Cornish (para. 7), 100 grains of nitrogen; therefore a pound of cholum should suffice to keep him in condition when condiments and nutritious substances are added.

14. The labourer's allowance is not a pound of cholum, but a pound of grain, *plus* half an anna, or in practice 1½ annas, in cash. Taking grain at an anna a pound (it is 25 per cent. cheaper), he can buy with this amount as much nitrogenous food as is allowed to the British soldier on board ship.

15. As to the carbonaceous element of food, the result is the same. The Manual lays down (page 98) that 3,500 grains of carbon are required in a state of rest, and that 5,000 "may be taken as a maximum under any circumstances of exertion." The dietaries show that the European soldier gets 4,307 grains in his full ration, and 2,986 when on board ship; while sepoys get 6,659 when on foreign service, and Native prisoners 5,616, or less, according

to the particular constituents of their diet. A pound of cholum contains 2,764 grains (page 376), so that on a pound a day the relief labourer gets more in proportion to his weight than the soldier on board ship, and can purchase with the wages given him almost as much as the soldier gets in his full ration.

16. These statements and estimates of the chemical constituents of the military rations, both for European and Native troops, have been furnished by the Madras Manual of Hygiene; they are put in the simplest possible form, and can be verified by any one, though he may not be versed in the chemistry of food or the data on which the calculations are made. They prove that the theories enunciated by English authorities, and adopted (without experiments) by the Manual, do not apply to Natives; they apply in a general way to Englishmen themselves, and cannot be accepted as valid reasons why Government should desist from a trial which will conduce to saving the people, and to preventing unnecessary expenditure.

Sir Richard Temple, in his minute of the 3rd April 1877, stated:—

The Government of India was pleased to depute Dr. Townsend, Sanitary Commissioner, to visit the distressed districts and to advise me whether the present rate of wages is sufficient to keep needy relief labourers in moderately good health. Dr. Townsend has now inspected more than 32,000 persons on relief works, of whom 29,000 were in the Madras Presidency.

2. It will be seen that Dr. Townsend's experience and knowledge lead him to lay little stress on the physiological argument that the reduced wage does not furnish the relief labourers with a sufficiency of certain elements of food. He prefers to decide the question by investigating the physical condition of a large number of labourers of both sexes and all ages, who have been subsisting on the reduced wage for periods from three to five weeks. His report shows that he found the relief gangs to consist of men, women, and children in good health and in moderately good condition. But Dr. Townsend considers that the number of exceptional cases was hardly greater than that which would be found among workpeople in ordinary years. Though Dr. Townsend has no special knowledge of the Southern India races, he has an extensive knowledge of all classes of the people in other parts of India.

3. Dr. Townsend's views coincide with mine, formed after inspecting 200,000 people under relief in Southern India. My impression is that the majority of the civil officers, of the relief officers, and of the engineering officers, employed in supervising relief operations in the Madras Presidency, hold the same views. Mr. Price, the Collector of Cuddapah, is the only one who has, to my knowledge, reported that the reduced relief wage is inadequate. I do not concur with the Collector.

4. Every relief officer must (as Dr. Townsend did, and as I have done) come upon cases of relief labourers reduced and requiring special treatment. But I see no reason for thinking that such exceptional cases warrant a general enhancement of the wage rate.

5. The orders of the Madras Government, dated the 14th March 1877, passed by them after conferring with me, and in which I fully concur, direct that relief officers shall treat specially all cases of relief labourers who have fallen into a reduced condition of body. I am confident if the full wage[1] reaches punctually and not less than three times a week, that the present scale will suffice to keep in health relief labourers who do a very moderate daily task.

6. I recommend the adoption of the opinion of the Sanitary Commissioner, that there are not any sufficient grounds for any raising of the relief wage rates in the Madras Presidency.

7. If unhappily some poor wanderers fall in a dangerously reduced condition and die, as has been the case in the relief camps near Madras, such sad occurrences can be, and should be, prevented, not by raising the relief wages, but by increased care in conducting house-to-house inspection, and in searching out all cases of poor creatures who wander away in search of charity and never go upon the relief works.

Surgeon-Major S. C. Townsend, Officiating Sanitary Commissioner, in his report of the 23rd April 1877, says:—

2. The Government of India, in its letter No. 45, dated 16th January 1877, to Sir R. Temple, had laid down the principle—

"while every effort should be made, so far as the resources of the State admit, for the preservation of deaths from famine, the most severe economy should be practised, and, apart from financial consideration, it would not be just on the part of Government to attempt the task of preventing all suffering and giving general relief to the poorer classes of the community: indiscriminate charity on the part of Government would not only lead to the imposition of heavy and permanent burdens on the industry of the country, but would also tend to demoralise the people.

4. Up to January 1877 the wage in the ceded districts of the Madras Presidency was 2 annas per diem for a man, and proportionately less for women and children. This rate was fixed on the supposition that it would purchase 1¼ lb. of grain per diem,—a quantity deemed essential for a man at work. But it seemed to Sir Richard Temple that this rate of wage was too high, and that it had the effect of inducing numbers not really in want to come on the works and of withdrawing many from their usual occupations still open to them.

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[1] Annas 10½ for a man,
„ 8¾ „ woman,
„ 5⅝ „ working child,
„ 1¾ „ infant unable to work,
per week, when food is not dearer than 8 sirs (16 lbs.) per rupee.

He accordingly recommended that the wage given on Civil relief works should be reduced from 2 annas to 1½ for an adult, which at the prevailing prices would purchase a pound of grain, and leave a margin for condiments. This recommendation was adopted, and a reduced wage ordered in the Madras Government order No. 329, dated 31st January 1877.

5. The reduced rate was fixed, so long as grain could be bought at 16 lbs. per rupee, at 1½ anna for adults, 1¼ anna for women, 9 pie or ¾ of an anna for children above seven years of age. This rate appears to have been brought into force on the relief works from the 15th to the 20th February 1877. The practice is not uniform on all works with respect to payment for Sunday.

6. About the same time the allowance of 3 pie or ¼ of anna to children too young for labour was sanctioned,—a measure which nullified the reduction in the case of married people with three or more children, which they had been obliged to feed on the former rate of two annas.

7. In a letter, No. 115, dated the 13th February, Dr. Cornish, the Sanitary Commissioner for Madras, objected to the reduced scale of diet recommended by Sir Richard Temple, saying that it was not sufficient to maintain labouring persons in health; that its adoption was fraught with danger to the health of the people; that a pound of any of the grains used by the people did not contain nitrogenous elements of food in quantity sufficient to supply the waste of the tissues. Sir Richard Temple deemed it advisable to ask for another opinion on the subject, and on the 16th of March 1877, I was directed to join Sir Richard Temple.

8. The point cannot be decided on physiological grounds. Some years ago the doctrine was, that muscular exertion entailed waste of muscular tissue,[1] and that to compensate this waste, food containing nitrogenous principles must be supplied in proportion to the labour undergone; but later investigations have tended to modify this teaching, and certainly at the present time there is no theory on the subject so accepted that any economic question can be decided by it.

9. The question of the sufficiency of scale of diet can only be decided by observation of its effect on masses of people, and observations of this kind in a time of scarcity (if conducted impartially and without bias towards theories) cannot fail to contribute facts bearing on the question of the quantity of food of different kinds that is necessary to the support of the human system under conditions that would be of great value, from a scientific point, for guidance in the conduct of measures of relief. Accurate information is wanting regarding the state of the people when they first came on the relief work, and again of their state when the rate of wages was reduced. A knowledge of the aspect and condition of the poorer classes in ordinary times is requisite to enable one to form a just estimate of the effect that the prevailing scarcity may have had on them. I have no knowledge of the population of this Presidency, but considerable experience in other provinces leads me to believe that at all times signs of mal-nutrition are visible among the poorer classes of the populations of India. A loose and shrivelled skin, a pale and anæmic aspect, and emaciation, will follow privation and insufficient food; but the same appearances arise from defective nutrition resulting from constitutional debility or disease. When famine presses on the population, diminutive and emaciated infants become numerous, and form one of the most painful evidences of distress; but in the best of times, the number of these distressing objects would be considerable. Our statistics show that the rate of mortality of infants among the population of this country is as high as in the manufacturing districts of England, and it is probable that the number of women unable to nourish their infants is as numerous here as in other countries, while it is not the habit of the mothers to supplement their own defective supply by other food. Diseases resulting from malnutrition are common, and deaths, compared with those of other countries, very high. A very large allowance must be made for permanent poverty, beyond the power of Government to remove.

10. The want of information as to the extent to which the people on the relief works possess sources of support, other than the daily wage given them, is another obstacle in the way of forming a correct estimate of the sufficiency of the wage to maintain them in fair condition. Where the gangs are encamped on works away from their homes, and where the men are equal to, or outnumber, the women, it is probable that the majority are dependent solely on the wages they earn; but when the works are near the larger towns, and the gangs are composed to a very large extent of women and children, it may be assumed that the men are earning wages in some form elsewhere, and that the earnings of the women and children are simply accessory to the ordinary means of support.

11. Notwithstanding these difficulties, it is possible by a careful scrutiny of large gangs of people in different localities, combined with information derived on the spot from the officers who have superintended the relief measures from the commencement and watched the condition of the people, to arrive at a fair estimate of the extent to which the people have suffered from scarcity of labour and dearness of food, and how far the measures of relief have proved successful.

12. The first relief labourers that I inspected were at Sholapur, in the Bombay Presidency. Here there were two bodies of labourers, a body of 3,000 under the Department Public Works, performing half the task exacted from able-bodied labourers. The men were receiving 1¾, the women 1½, and the children ¾ of an anna. There was no question as to the sufficiency of the food; they appeared in good condition, and there was no doubt on the part of the officers superintending the works that the wage was quite sufficient.

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[1] Has Dr. Townsend ever walked smartly 20 miles, or solved a difficult mathematical problem, without feeling "that virtue had gone out of him"? See page 144.

13. The other body of labourers was employed under the Civil authorities, and numbered about 300. Many were above middle age, and had come on the works in January 1877 in an enfeebled state. Some of these people had improved since they came on the works, but as a body they were much lower in condition than the gangs under the Department Public Works. The wage given was in both instances the same, with the exception that the men on the civil works received only 1¼ annas, instead of 1⅜. In neither case was payment given for Sundays. The lower condition of the civil gangs was due chiefly to the circumstance that they had become more reduced before coming on the work. The average age of the adults was greater, and it is probable that at the best of times they were below the average in physique.

14. At Adoni I inspected nearly 13,000 relief labourers, the greater majority of whom had been on the reduced rate of wage for above a month. The task-work performed was not more than one-tenth of the task exacted from a coolie in ordinary times. These people were in fair condition, and in the opinion of the relief officer had not deteriorated since the reduced rate of wage had been in force. There were exceptions, and weakly and feeble people were picked out; but these consisted of persons never in good health and condition, or it was found on inquiry that the individuals shared their wages with others.

15. At Bellary I inspected 10,000 relief labourers. At the Hiliyal road, where a large body of 7,500 was employed, the men considerably outnumbered the women. Task-work was exacted, and if the task was not complete, less wage was given; and the great majority were receiving less than the reduced rate. There was, however, no sickness. The number whose appearance called for enquiry was very small, and the impoverished appearance of the individuals lighted on was usually accounted for in much the same way as at Adoni. The relief officer stated that these gangs had improved in appearance since the works were established, and had not fallen off since the reduced rate of wage had come into force.

16. In Cuddapah I inspected two bodies of labourers; in one, numbering 950, employed close to the town and station, the women greatly outnumbered the men. The daily task exacted was light, and was commonly completed. These people were in appearance little below the standard of health common in the town populations. Some were no doubt thin and anæmic, but the number was small, and in the majority of these cases the individuals had only lately come on the works, or had been suffering from fever. The other gang, 800 strong, was composed chiefly of agricultural population belonging to the surrounding villages. Here the women outnumbered the men. The general appearance was very good. A large number of the men and women were as stout and healthy-looking as they could be in the best of times; here and there thin and weakly persons were observed, but on inquiry it did not appear that their weak condition was attributable to want of food. The relief officer stated that when the people received the higher rate of wages, they did not spend more in food that they do now, but saved the difference, and they have not deteriorated in condition since the wage was reduced.

17. At Vellor, North Arcot district, I inspected about 3,000 people; 1,120 employed and 400 applicants for employment in the construction of an embankment on the Palaar river, may be considered as samples of the population who have not hitherto been on relief, for those employed had been collected some for about a fortnight, others for not more than a few days. The proportion of men employed here was small, being only 7 men to 28 women and children; and a very large proportion of the men were old or elderly. The task exacted is 75 per cent. of the ordinary Department Public Works rates, and the people are paid—

Men	1 anna	11 pie.
Women	1 „	5 „
Children	1 „	

This is higher than the reduced rate given in other districts, and seven days' payment is given for six days' work. The elderly men were most of them of spare habit, but fairly muscular and in appearance healthy. The younger men were for the most part robust and in good condition. At the Sooriaghuta tank 1,600 people were employed, and here the proportion of men is very small, being only 3 to 35 women and children. From the 19th February to the 25th March 1877 they were on the reduced rate, but it has now been again raised to the same rate as on the Palaar embankment, because the people did heavier tasks. As a body, these people were in fair condition, and as far as I could ascertain did not deteriorate during the five weeks that they were on the reduced rate of wages.

18. At the Vellor relief house 700 people incapable of work are fed. The proportion of men and women is about equal. Each adult male receives daily 1 lb. of dry rice cooked; 10 ozs. of this is given at 10 o'clock, and the remainder in the evening. To the evening meal is added half an ounce of dall mixed with vegetable and condiments. In many of these people the effects of famine are very evident, particularly among a number of people who have come in from the Kulhustri zamindari; but they are improving on the food now given them.

19. I consider that the rate to which the wage of the relief labourer was reduced by Sir Richard Temple is sufficient to support them in fair condition, provided that the individual recipient is the only person who is supported on it. I see no reason why the wage should be raised, unless an equivalent amount of work is performed.[1]

Dr. Cornish, the Sanitary Commissioner for Madras, in his letter of the 6th April 1877, observes:—

Sir Richard Temple thought that the sufficiency or insufficiency of this grant of food was a matter of "opinion," and recommended that a scale of payment, based on the price of a pound

[1] This is in direct opposition to what is stated in para. 8.
These remarks are hardly *evidence* of the sufficiency of the ration.

of grain, should be tried "as an experiment" in the various relief operations throughout this presidency. The Madras Government had acceded to the proposition, and issued orders for the enforcement of a reduced scale of wages, before I was aware that the subject had been before the Government.

I have been a reader of famine literature, to which Sir Richard Temple has been a contributor. His "Narrative on the Famine in Bengal and Bahar in 1874" lays down with clearness and precision the data on which the importation of grain was then determined, and I agree entirely with every word Sir Richard Temple then wrote as to the quantity and quality of the food-supplies necessary for the maintenance of the health of the people of Bengal.

Sir Richard Temple based his calculations on 1½ lbs. of grain per head being required for a certain period for a certain proportion of the population, whereas 1½ lbs. ought to have been taken for an adult, and half the quantity for each child under 10 years of age. The error involved the provision of more than 100,000 tons of grain beyond that necessary according to accepted physiological data.

In January 1877, at Sholapor, in Bombay, Sir Richard Temple accepted, without question, the fact that the relief wages in Bombay were calculated on the basis of 1½ lbs. of grain per diem for an adult. It was only on his arrival in the Bellary district of the Madras Presidency that he appears to have undergone a conversion to the "pound a day" theory; but Sir Richard has not explained in the minute dated 13th January the grounds of his sudden change of opinion, and as his views in 1874 and 1877 appear to me to be irreconcileable, I quote them in parallel columns:—

Sir R. Temple's Views at the time of the

Bengal Famine, 1874.[1]

This rate (¾ of a sir, or about 1½ lbs. per head for men, women, and children) at which grain should be provided was assumed after due consideration. The lowest diet provided in Bengal jails for non-labouring prisoners is equal to 1 sir, or 2 lbs. The ordinary diet of a labouring adult in Bengal is taken after statistical inquiry to be 1 sir of rice besides ¼ sir of fish, pulse, pepper. The diet prescribed for adult Bengali emigrants on ship-board and for Bengali sailors always exceeds 1 sir a day in total weight, and in some cases reaches 2 sirs a day. Many of the poor people for whom grain was to be provided would be labouring hard on relief works during inclement and exhausting weather. Nearly the whole of the Government provision of grain consisted of rice, which contains less strength-giving qualities than wheat. Each bag of the consignment of Burma rice would contain from 8 to 20 per cent. of innutritious husk. Thus I framed my estimates of total requirements on the basis that each person would require ¾ of a sir a day. It was found that to paupers, not doing work, local Committees had to give ⅜ of a sir of rice daily, besides one pie (⅛ of a penny) for the purchase of condiments; to women in delicate health and to persons reduced by hunger a still larger daily dole had to be allowed.

Madras Famine, 1877.

The present rate of wages is fixed at 2 annas per diem for an adult and proportionately lower for women and children. This rate is fixed upon the supposition that it will purchase 1½ lbs. of grain per diem, a quantity which is essential for a man at work. There might indeed be a question whether life cannot be sustained with 1 lb. of grain per diem; and whether Government is bound to do more than sustain life. I myself think that 1 lb. per diem might be sufficient to sustain life, and that the experiment ought to be tried. Possibly the gangs might not perceptibly fall off in condition. After a week or fortnight's experience it would be seen whether they so fall off, or not; if they were to seriously fall off, then the point could be considered.

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(11.) The objection to the new scale, which Dr. Cornish states in detail, is properly formulated by the phrase a full day's wages (that is, something more than the 1 lb. and the ½ anna) for a fair day's work. But the phrase postulates that there is a fair day's work, which is just what the vast majority of the relief labourers do not render. Therefore they are not entitled to, and do not physically need, the full day's wage.

* * * * *

In his minute of the 7th March 1877, Sir Richard Temple declines to enter into the "purely professional arguments" advanced in my letter, further than to note that I stated *a fact*, that as the human frame, in every race and climate, disposes of a certain amount of nitrogenous matter every 24 hours, a like amount must be taken into the body in food to restore that waste, otherwise the tissues of the body will gradually disappear, and that in my opinion 1 lb. of rice[2] containing from 68 to 80 grains of nitrogen, and a small money payment of six pie (three farthings) would not suffice to enable a labourer to restore his daily expenditure of tissue.

Sir Richard Temple objects that my data refer to the case of Europeans, and that, owing to the greater weight of the white-skinned races, the quantities of food necessary for Natives of India cannot be decided by European experience. I expressly alluded in paragraph 5 of my letter to a statistical inquiry undertaken *in India* in the year 1863 regarding the nature and quality of the food of the various classes of the people of *India*. I drew up the instructions for the medical officers who made the investigations in the various districts; compiled the report submitted to Government and to the Secretary of State for India; I made for many months a collection of food grains, experimenting with them in my own person, as to the methods of preparing them, and their digestibility; and learned, by questioning all sorts and conditions of men, the average quantity of food they were in the habit of using. I did this under a conviction that the statistical inquiry ordered by the Secretary of State was one of vast importance, and took unusual trouble to attain accuracy, because I was convinced that the heavy mortality in our jails was due to bad and unscientific feeding.

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[1] Sir R. Temple was, in 1874, Lieutenant-Governor of Bengal, the administrator of the famine of that year in Bengal; in 1877, the Famine Delegate of the Government of India, with certain instructions.—See page 106.

[2] Dr. Lyons here supports Dr. Cornish.

A similar inquiry was made by every Administration in India, and the results are available for Sir Richard Temple's guidance, though in regard to many of the provinces I never heard of the results having been published. I imagine that the " statistical inquiry" alluded to by Sir Richard Temple in his " Narrative," and in which the quantity of grain per adult is said to be from one to two sirs per diem, must be the one made in Bengal in 1863. My paper on " food and prison dietaries," published in Vol. VIII, pp. 1—73 of the " Madras Medical Journal," embodies all the facts collected with reference to food supplies and the quantity of grain habitually used by the people of Southern India.

It is not easy, therefore, to account for the mistake that my remarks had reference to the dietaries of Europeans, when I was at special pains to point out that an independent investigation conducted by 20 or 30 medical officers in the provincial civil stations, checked by my own independent enquiries and observations, showed that the minimum grain allowance of a man in health and in work was not less than 24 ounces, and that it was frequently double that quantity in favourable seasons.

In regard to the proportion of nitrogenous to non-nitrogenous food, the reference I made to Sir Robert Christison's labours was to show the standard to which all successful dietaries should approach, and I admitted that in the food of an Indian people, the " proportions of one to three are but barely attained, and the tendency is always to a smaller proportion of nitrogenous food."

I referred, moreover, to the experience of Indian jails (paragraph 8), in which practical food experiments on thousands for a series of years under strict tests as to supervision show that the food of a people was a more complex question than that of providing a certain quantity of grain.

From Sir Richard Temple's minute, one might think that men like Leith, Chevers, Ewart, Bedford, Strong, Mouat, Fawcus, Irving, Forbes Watson, Mayer, Lyons, myself, and many others, had never thought of the subject of feeding in its practical and scientific aspects, and that jail and other diets in India had been constructed without reference to the nutritious quality of the food-grains, or to the proportions of the various kinds of food. It must be clear, if Sir Richard Temple be correct,—

> that 1 lb. of grain and a small money payment, equivalent to three farthings, is enough to keep a man in health and strength while undergoing a fair daily task,—

that every Administration in India has for years been inciting people to break the law by providing criminals with a dietary beyond their actual necessities, and that the recorded experience of 30 years, as to the effects of food on health in Indian jails, must be discarded as worthless.

The carefully built-up experience of the past must be our guide in this matter, in preference to the " opinion " of a gentleman who, unconscious of the cruelty involved in his proposals, would desire to begin a huge " experiment " on the starving poor of this country, at a time and under conditions which would prevent the results of that " experiment " ever being tested and recorded.

The proposition of Sir Richard Temple's to which I took exception was:—

> There might, indeed, be a question whether life cannot be sustained with 1 lb. of grain per diem, and whether Government is bound to do more than sustain life. This is a matter of opinion, and I think that 1 lb. per diem might be sufficient to sustain life, and that the experiment ought to be tried. Perhaps the gangs might not perceptibly fall off in condition. After a week or fortnight of experience, it would be seen whether they so fall off or not.

Our relief works are scattered over thousands of miles of country, but indifferently supervised, and the Native supervisors are not qualified to test the results of any system of feeding or payment. To record the results of such an experiment with accuracy, it would be essential to weigh every individual of a gang, to enter his name and weight, to repeat the weighing week by week for several months, to note his condition week by week, as to anæmia, pulse, tongue, heart's action, muscular power, &c. An " experiment " of this nature might be carried out as regards a few persons under the constant observation of a medical man, aided by careful assistants, but the results on a large scale according to the tests proposed by Sir Richard Temple could never be ascertained. Sir Richard Temple is not aware of the fact that " a week or two " of low living, while doing much mischief, might give no results measurable by the eye or by weighing.

On famine relief works there are many sudden changes and fluctuations in the " personnel" of gangs. The people inspected one day are away the next; those falling ill and unable to work are replaced by others; there is no certainty that two inspecting officers going over the same ground, within a short interval of time, are seeing the same people. No comparison of their observations can be made while this uncertainty exists.

There is a rough and coarse test of the results of the reduction of wages which may commend itself to the notice of Government. It is that, while the numbers paid for, and supposed to be employed on, relief works in the first week of February were 907,316, they fell in the last week of March to 662,195; and that the numbers " too weak for work, requiring cooked food in relief houses," had increased from 38,163 in the first week of March to 99,113 in the last week of the same month. From my recent inspection in Maddanapully and Royachoti, I found these helpless and infirm people were increasing at the rate of more than 100 a day at each relief house. If they continue so to increase, as I think it but too probable, the numbers to be fed in the Cuddapah district will probably reach 20,000 within the next two months, instead of 3,294, as in the last week of March.

The condition of the gangs varies. Some have very little distance to go to their labour, and in such cases the collection of half a cubic yard of road material may not involve any unusual exertion. But I have seen work attempted when the ground was as hard as iron, and with tools much too heavy for the strength of those who had to wield them, and officials of the Public Works Department have told me that in their contract rates no coolies would ever think of attempting work of this kind, except when the ground had been softened by rain. In such cases the bodily wear and tear of moving half a cubic yard of material, or executing 50 per cent. of a Department Public Works task, is considerable.

I have seen very wretched and enfeebled creatures in the gangs, who have come distances of four, six, and eight miles to their work, dragging their children to and fro with them, and I have no hesitation in stating that when these distances walked and weights carried are considered with the day's work, that the expenditure of force is far beyond its replenishment in food wages.

Sir Richard Temple states that his lowest scale of wages will permit of men buying 1¼ lbs. of grain in addition to condiments and some other nourishment; but, however this may be in the Bellary district or in certain stations on the line of railway, it is not so in the upland taluks of North Arcot and Cuddapah. At Goorumkonda the bazar price of rice was 13 lbs. the rupee, and at Royachoti 14 lbs., so that 1 anna would not purchase even a pound of grain.

The mode of calculating the wages of the coolies, too, in some districts has the effect of reducing the earnings of men from 1 anna 6 pie to 1 anna 5 pie or 1 anna 4 pie; with deductions for short work, and the "customary tribute" to the gangsmen, there is reason to fear that in many cases the labourers do not get the whole of the reduced wage.[1]

I pointed out that a man must *eat*, even if he *works* not on Sundays, and that a subsistence wage ought not to be shared with children. There is now little difference between Sir Richard Temple's wage rate and my own recommendations. I have contended that the basis of a pound of grain for a labouring man was unsafe, especially when that wage was paid only for six days in the week, and when helpless children had to share in the food. Sir Richard Temple concedes the additional help to feed the young, and yields all that I felt justified in urging.

Though the wage-rate of 2 annas, 1½, and 1 anna, for men, women, and children may be too little to procure a sufficiency of food to maintain health, yet the people are ready enough to work for wages, getting payment for, and doing work only on, six days in the week. Deficiencies they supplement by using articles such as the seeds of the bamboo, tamarind, &c., the pith of the aloe plant, and jungle leaves like the *Sethiæ Indica.*

	Ordinary Scale.		Sir Richard Temple's Amended Scale.	
	Six days at	Amount per week.	Seven days at	Amount per week.
	Annas.	Rs. A. P.	Annas.	Rs. A. P.
Man	2	0 12 2	1½	0 10 6
Woman	1½	0 9 0	1¼	0 8 9
Two children	1	0 12 0	¾	0 10 6
Two children under 7 years of age	...	...	¼	0 3 6
Total as per week	...	2 1 0	...	2 1 3

It will be seen that a man with four children, two workers and two non-workers, is better off by 3 pie per week under Sir Richard Temple's modified reduced wage than he was when working six days in the week for ordinary wages.

The great financial saving, therefore, of many lakhs of rupees is not likely to accrue from the introduction of the new scale of wage. It has given intense dissatisfaction to the labouring people, who could not, or would not, comprehend its terms; opened the door for abuses, and not tended to economy in disbursements.

In some gangs near Cuddapah I saw women labourers encumbered by three or four children under age, brought to secure the pittance under the recent modification of the rules. These children, much exposed all day, distract the mother's attention from her work.

Sir Richard Temple asks whether a pound of grain a day is sufficient to maintain a Native of India in a "state of rest." I know not of any cereal which would give sufficient albuminous matter in a pound weight to replace the daily waste of nitrogen from the adult Native body. The "evidence" adduced by Sir Richard Temple is no evidence. Sir Richard says that in the Vellor relief camp Dr. Fox and Captain Harris were agreed that men had so improved on 1 lb. of grain; but I found that the "evidence" rested on general impressions, and not on periodical weighing and individual record of weight from time to time.

In the "weight test," caution is necessary, for many who come into camps appear to be fattening, when in reality they are dropsical and in a fair way to die. I can understand that the people in the Vellor camp did better on 1 lb. of grain per diem than they did on 12 ounces, which was the scale in use until a few weeks ago, when Dr. Fox urged an increase.

[1] The loss, by waste and diet, is:—
In rice ... 4 per cent.
Ragi ... 20 „
See page 71.

I fall back on our experience in dieting non-labouring prisoners, and recommend 20 ounces or 1¼ lbs. of cereal grain, besides dhall, vegetables, condiments, &c., for adults fed in relief camps; and this allowance is now sanctioned by Government, and should be a minimum allowance, considering how much tissue these poor creature have to repair before they can be brought into a state to do a day's work.

At Nellor, Surgeon-Major A. M. Ross has been weighing coolies on relief works. The average results are shown below :—

	Average Weight in lbs.		
	Men.	Women.	Children.
In jail	109·1	92·3	70
On relief works	94·3	77·6	46

These weights indicate much wasting.

Sir Richard Temple states, in his minute of the 7th March, his belief that the labouring poor in Madras can hardly get more than 1 lb. of grain a day for a male adult in ordinary times.

I submit whether inquiries made in this way, to satisfy a foregone conclusion, can be compared in value with the careful statistical inquiry in 1862 and 1863,—an inquiry which furnished the basis for our subsequent arrangements in the dieting of the people. People in India are acquainted with the answers a high official personage will get to leading questions; and if Sir Richard Temple thinks he has got at the truth, I can assure him, after a practical study of the food of the people of Southern India for the last 15 years, that he is utterly mistaken, and that, so far from the labouring adults living upon a pound a day, they eat on the average nearly double.[1]

I wrote 15 years ago :—

A free labourer will use from 32 to 40 ounces of cereal grain (cholum, cumboo, ragi, or rice), about 2 to 3 ounces of dhall, a similar quantity of meat or fish, and fruits or vegetables in addition.

From personal inquiries I should reckon the average consumption of cereal grain per diem of an adult labouring man rather under than above 30 ounces.

The greater variety of food and its more liberal use by the free population depends much upon the means of the individual, and upon the supply of food in the district. In famine and drought, after failure of crops, the quantities of grain given as the daily consumption of a healthy man would be much reduced, and in such seasons the jail diet would be superior to that of the labouring poor. In scarcity, grain robberies and petty thefts are prevalent, many of these offences being committed with the object of securing the jail rations. The want of due nourishment is evident in the attenuated bodies of the poor. Many die from the effects of starvation, while the bulk of those who struggle against famine have the vital powers so reduced that they are predisposed to suffer from the ravages of cholera and fever. The following of pestilence in the wake of famine has received many an illustration in the Indian history within the present century.

Sir Richard Temple, in his minute of the 14th March 1877, observes :—

The opinion that one pound a day of grain might suffice for a relief labourer, together with some allowance for condiments and the like, or some nutritious substance, was not, indeed, based on scientific theory—it was founded rather on probabilities practically deduced from the condition of the poorer classes in ordinary times, and on the results of general experience.

I ask, whose experience? Not Sir Richard Temple's, surely; for in 1874 he assures us that the people in Bengal habitually use from 1 to 2 sirs of grain (2 to 4 lbs.) per adult, and that even the people in relief-houses, doing no work, got ⅝ of a sir (1¼ lbs.). Sir Richard Temple records nothing of his travels in Bombay, showing that the people on relief works there lived on a pound of grain a day. It was only on his arrival in the Bellary district that he evolved the doctrine that a Madrasi could do what the people in no other part of India can,—thrive on 16 ozs. of cereal grain a day.

I know of no "general experience" favourable to Sir Richard Temple's view. Sir Richard Temple considers Sir Robert Christison's opinion to be entitled to a respectful hearing, and I may therefore make a quotation on the diet of the British soldier during the Crimean war :—

Experience has shown that the most successful dietaries for bodies of men, deduced from practical observation, contain carboniferous nitrogenous food in the proportion of about three of the former to one of the latter by weight. During 22 years that my attention has been turned to the present subject, not a single exception has occurred to me.

Hence it is obvious that the least weight of food in the rough state will be required, first, when there is the least moisture and cellulose tissue in it, and, secondly, when the carboniferous and nitrogenous principles are nearest the proportion of three to one.

Of the various nutritive principles belonging to each set, some may replace one another; some are better than others; some probably essential.

Two things, however, are certain, that nitrogenous may replace carboniferous food for supporting respiration, though at a great loss, but that carboniferous food (without nitrogen) *cannot replace nitrogenous food for repairing textural waste.*

Dietaries are never to be estimated by the rough weight of their constituents, without distinct reference to the real nutriment in them as determined by physiological and chemical inquiry.

Keeping these principles in view, and with the help of a simple table it is not difficult to fix the dietary advisable for any body of men, according to their occupation. Any scientific

[1] In the Nineteenth Century, July 1879, Mr. Caird says :—
"About Lahur they eat 2 lbs. of flour and 4 ounces of pulse per diem."

person conversant with the subject could have foretold that the British troops would have fallen into the calamitous state of health which befel them during their last winter in the Crimea.[1]

Remarks from so eminent an authority as Sir R. Christison ought to make unskilled constructors of dietaries in famine times cautious in the enunciation of strange doctrines, such as—

That the amount of nitrogen required by Natives must be much less than that required by Europeans (paragraph II. of minute).

In the scientific world we ask that any one bringing forward a theory shall state the facts on which it is based; and it would be fair to ask Sir Richard Temple whether, by himself or with professional aid, he has endeavoured to test his theory by estimating and measuring the amount of nitrogen which Natives of ordinary size and weight eliminate from their bodies. No one has a right to bring forward such a theory without first ascertaining, by repeated investigation, that the nitrogen excreted by Natives is proportionately less than in Europeans. Sir R. Temple quotes from the *Madras Manual of Hygiene,* by Surgeon-Major H. King, M.B., the composition of a scale of rations allowed to Native soldiers on foreign service. He points out truly that these rations, while yielding an abundance of carboniferous food (32 ounces of rice), are very defective in nitrogenous principles, the whole weight of food, in fact, yielding only 178 grains of nitrogen per diem.

"According to this theory," observes Sir Richard Temple, "the Madras sepoy would be undergoing starvation at the hands of the Government. But, in fact, he is not so reduced physically, nor does he fail the Government when it calls upon him for exertion. This case makes strongly against Dr. Cornish's theory."

I have no excuse to make for this dietary of our Native soldiers on foreign service. I gave it up 15 years ago, and recorded my opinion in the following terms :—

The deficiency of animal food in the diet, and the excess of carboniferous material, is undoubtedly a fertile source of the prevalence of sickness in Native troops on foreign service. The mortality of Madras troops on his diet in Burma is more than double what occurs in Indian stations, where they find their own food.

The foreign service "ration," in fact, is a "survival" from the time of the first Burmese war. It was framed in times before sanitary commissioners or chemists learned in food composition existed. The ration is simply an "aid" to the soldiers employed in a foreign country, and the men are put under no stoppages whatever on account of it, but draw the full pay of their rank, just as if they had to find every particle of food out of their pay. If the relief coolies had seven or nine rupees a month in addition to the pound of grain, I should have made no objections to the insufficiency of their rations.

The Government expect, with the Burmese markets well supplied with poultry, eggs, fish and flesh, that the sepoy can buy his nitrogenous food for himself, and practically he does so. But there are, and have been, exceptions. I need not go back to the very terrible mortality of Native troops from bowel-complaints in the first and second Burmese wars. In the year 1872 a detachment of Native troops was sent from Burma to occupy posts on the Arracan River in co-operation with the Lushai Expedition. The men had no market in which to buy animal food, and, in attempting to live on their "rations," they died in large numbers. The proportions are given in the margin.

Strength ...	184
Hospital admissions	901
Deaths ...	27 (12 from "dropsy," 5 "debility.")

Ratios of Sick to Strength per Mille.	Deaths.
489·67	146·7

The Native soldier on foreign service *does* "fail to do what the Government want of him," and because his "rations" are unfitted to support his health. The fact is acknowledged by every officer who has commanded in Burma. I reported 15 years ago to Government as follows :—

I have not entered into the question of revising the ration list of sepoys on foreign service, or of effecting changes in civil hospital diets, or of the sufficiency of the food laid down by law for emigrants from British India to the Colonies, all of which dietaries are unscientific in composition, and unfitted to support life.[3]

The "rations" of the European soldier do not, as Sir Richard Temple supposes, constitute his whole food.

Every commanding officer knows that the British soldier habitually buys extra meat from the bazar out of his pay, and there is no regiment in the country which has not a provision shop of its own, in which anything, from a Yarmouth bloater to a truffled sausage, may not be bought. The rations are fairly adapted for the British soldier, although there is no doubt that he eats more meat than the quantity contained in the ration.

In the Madras Manual of Hygiene, I see that the nutritive value of the 1 lb. of vegetables has been put down as if all the vegetables were of the cabbage or soft kind, "whereas potatoes form usually one-half of the vegetable ration of the soldier."

No calculation has been made of the nutritive value of the malt liquor or spirit he consumes.

The proportions of albuminous to carboniferous food in the official ration are about one to four.

Sir Richard Temple has made a mistake as to soldiers "in garrison" receiving a "reduced diet."

[1] Observations on a report by Sir J. McNeill, relative to rations for soldiers.
[2] Madras Medical Journal, Volume VIII, page 30.
[3] Madras Medical Journal, Food and Prison Dietaries, Volume VIII., page 56.

European soldiers "in prison" do receive, when sentenced for short periods, a punitive diet which has no bearing whatever on the question of the insufficiency of albuminous food in a pound of grain to keep an adult Native in health.

I was staggered by Sir Richard Temple's quotation of the scale of food allowed to "European soldiers on board ship."

The explanation of the calculated quantity of nitrogen in this diet being only 155 grains per day is simple. The diets in the appendix to the *Madras Manual of Hygiene* are from the Madras Medical Code. The transcriber, instead of entering 4 lbs., or 64 oz., "fresh bread" for a week's ration, entered 4 oz., and hence all the calculations of albuminous and carboniferous food are below the actual truth.

The calculator of the nutritive values has assumed that "salt meat" contains less albumen than fresh, and has put down a less proportion of nitrogen for the salt meat; but this is not the case, though in salt meat the albuminous matter may be less easily digested. The effect of salting meat is to harden the albuminous tissues, and to cause the watery juices of the meat to enter the brine; consequently salt meat has more albumen in a given weight than fresh, or preserved, meat.

I consider the ship-board dietary of the European soldier, containing from 200 to 240 grains of nitrogen per diem, well suited for a class of people who have nothing to do.

Sir Richard Temple says the British soldier is not reduced by a diet containing 155 grains of nitrogen; the answer is that the British soldier is never put on any such diet, and that the figures on which Sir Richard Temple rests his "crucial instance" are wrong, partly from a clerical error of the transcriber and partly from the mistake in estimating the albuminous matter in the salt meat of the ship-board ration.

Therefore, all Sir Richard Temple's surmises on the hypothesis that 155 grains of nitrogen are enough for a British soldier fall to the ground.

I protest against the argument that, as the British soldier only needs so much nitrogenous food, the Native of India can do with two-thirds of that amount, or less.

In the *Indian Annals of Medical Science*, Vol. III, 1855, Mr. Strong gives tables showing the influence of a change of diet in the Alipor jail. A Magistrate, thinking that the prisoners were being too well treated, abandoned a scale of food sanctioned by the Medical Board, which had kept the prisoners in health, for a dietary of his own devising. The change consisted chiefly in knocking off the meat, reducing the grain allowance, and obliging the prisoners to consume what they had in a single meal. The result of this amateur tampering with the food was an increase in mortality from an average of 42·4 per thousand to 117·5 per thousand in the three years during which the "experiment" was in force. The constituents of this dietary gave about 19 parts of carboniferous food to 1½ of nitrogenous!

The late Mr. Bedford, of the Bengal Medical Service, records a similar increase of mortality dependent on a change of food in the Rajshahye jail in 1852-53. Several months elapsed before the bowel sickness appeared, but the result was a trebling of the annual mortality.

The effect of improving the standard of diets in the Madras jails in 1867, so as to raise the amount of albuminous food equal to from 200 to 240 grains of nitrogen per diem, has been to diminish the mean annual death-rate from 107 to about 22 per thousand for the eight years in which the new dietaries have been in force.[1]

A few years ago, a jail superintendent, admonished by Government for over-much flogging, was requested to adopt some other mode of punishment, and the punishment-book showed, in a few months, hundreds of entries to this effect: "Half rations until he completes his task." The result was great increase of sickness and mortality from the diseases such as now fill our famine camps, *viz.*, sloughing ulcers, bowel-complaints, dropsy, and impoverished blood. On discontinuing the food punishment the mortality began slowly to subside to its normal proportions. So close is the connexion, in fact, between a sufficiency of nitrogenous food and health of the prisoners, that I never now hear of an increase of bowel disorders and dropsies in a jail, without at once suspecting tampering with the food, or privation in the district furnishing prisoners. After the Bengal famine, the rate of mortality in the Julpigori jail was 27 per cent., chiefly from "bowel-complaints;" in Rungpor 17·6 per cent; in Gya, Tirhut, and Chumparun the mortality was 17, 10, and 15 per cent. respectively. "Dysentery was the most fatal disease."[2] It was a mortality from starvation-diseases.

I think myself justified in having given warning of the danger of reducing wages to the basis of 1 lb. of cereal a day.

On the present condition of the labouring poor, Sir Richard Temple states:—

> Having carefully inspected during my tour in this presidency thousands of relief labourers, I give it as my opinion that with very few exceptions, not as a rule traceable to insufficient wages, the general physical condition of the labourers is as good now as in ordinary years.

This is Sir Richard Temple's opinion, but not mine. I have seen a number of relief labourers, and taken pains to find out where the distress really is, and my experience is this, —that if I want to see the darkest side of the famine picture, I must look for it elsewhere than amongst the ranks of those who have still strength left them to work. I must examine the condition of the people fed in relief houses, lungarkhanas, and by private charity; of the poor in the bazars; and of the old and the young, the earliest victims to distress. The famine is pressing with severity upon sections of the labouring classes, averaging from 20 to 30 per cent. of the population, of the several districts, among whom there has been a very large mortality, primarily due to bad and insufficient feeding.

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[1] See paper—"Sanitary Improvements in Indian Jails."—Transactions, Social Science Association, for 1875.
[2] Report of Sanitary Measures in India, Volume VIII., page 10.

Immediately the condition of a people becomes so low that they cannot work, the question of saving life becomes enormously complicated, and the time has passed when Government relief can do more than attempt to rescue a few possessed of the strongest constitution.

The following figures show the mortality in the Madras relief camps for ten weeks ending 31st March 1877 :—

Mean strength.	Total deaths.	Annual ratio per mille.
11,005	1,971	930·8

This enormous mortality is a death-rate which wipes out nearly the whole of the living within a year. The excessive death-rate in Madras is that in every relief camp in the country. This excessive death-rate is not due to cholera or small-pox, for the Madras camps have been singularly free of the former, and by means of vaccination the small-pox epidemic has been controlled—it is entirely due to diseases which in India attack under-fed and starved people,—extreme wasting of tissue, and destruction of the lining membrane of the lower bowel. Thanks to Surgeon-General G. Smith and his medical staff in Madras, the nature of the famine disease has been verified by post-mortem examinations. Surgeon-Major Porter informs me that the average weight of bodies of full-grown men he has examined has varied from 57 to 85 lbs. To record this fact shows the extreme wasting during life.

If the condition of the labouring classes is generally satisfactory to Sir Richard Temple, how is it that the death returns of the famine districts are much above what is usual? These district death returns very much understate the real mortality of the last few months. The famine has disorganised our village establishments to such an extent that the actual numbers who have perished will never be known. Hundreds and thousands of people have died away from their homes, have fallen down by the roadsides, and have left their bodies to be devoured by jackals.

With our village establishments panic-stricken and the village messengers away at relief works, it is certain that the death registration has been most incomplete. At Maddanapully the deaths in the civil hospital had exceeded those borne on the village register for certain months, and at Royachoti the deaths amongst the starving people sent in to the relief-shed in March had exceeded the registered mortality for the whole town.

Mortality in the Famine Districts

Districts.		Chingle-put.	Nellor.	North Arcot.	Kurnul.	Cuddapah.	Bellary.
Population		938,184	13,76,811	2,015,278	914,432	1,351,194	1,668,006
				Registered deaths.			
Average of five years ending 1875	December	1,892	2,007	3,445	1,420	2,336	2,585
	January	1,404	1,794	3,943	1,371	1,933	2,253
Present season	Decr. 1876	2,865	5,641	6,006	11,862	6,612	7,440
	Jany. 1877	6,094	11,142	13,686	6,253	13,361	9,361
Ratio per* 1,000 *of population per annum.							
Average of five years (2 months)		21·08	16·6	21·9	18·3	18·9	17·4
Present season (2 months)		57·2	73·7	58·7	118·8	88·7	60·4

These figures, under the truth, show an appalling mortality in the famine districts during December 1876 and January 1877. In our municipal towns, death registration is more efficiently managed, and the following figures will tend to show the gravity of famine :—

Mortality in the Municipalities of the Famine Districts.

Municipal Towns.		Madras.	Conje-veram.	Nellor.	Vellor.	Walla-japet.	Kur-nul.	Cudda-pah.	Bel-lary.	Adoni.	Gooty.	Anan-tapur.
Population . . .		397,552	37,327	29,929	38,022	12,103	25,579	16,225	51,766	22,723	6,730	4,918
					Registered deaths.			50	77	69	9	7
Average of 5 years ending 1875	December	1,211	65	53	84	41	71	55	57	47	10	8
	January	1,260	65	37	81	30	73	40	53	51	9	4
	February	1,100	65	38	80	26	60	83	192	446	127	11
Present season	1876, Dec.	2,034	96	127	89	48	376	82	114	180	24	9
	1877, Jany.	4,059	367	169	146	66	147	92	127	278	6	27
	„ Feb	4,401	87	288	215	41	171					
Ratio per* 1,000 *of population per annum.												
Average of 5 years (3 months)		35·9	20·8	17·1	28·4	32·0	31·9	35·6	14·4	29·3	16·9	15·4
Present season (3 months).		105·5	58·9	78·06	47·3	51·2	108·5	63·1	33·4	159·1	93·3	38·2

The famine has fallen heavily on the old, the weakly and children. It is "weeding out". a large number of victims, and, in consideration of the fact that diseased conditions dependent on sufficient food *follow months after the cause has passed,* I apprehend that a heavy mortality will continue after the drought has ended.

The survivors of the famine will be the strongest of their race to continue the species, and will produce a vigorous race of descendants. The children born of famine-stricken mothers are nothing but skin and bone; the birth-rate is seriously diminishing, and pregnancy amongst the distressed women is becoming a rare condition.

On these grounds I cannot subscribe to the pleasing and hopeful telegrams in which Sir Richard Temple summarises the weekly progress of events for the benefit of the Home Government and the English people. There are two sides to every picture.

Surgeon-Major J. B. Lyon, F. C. S., Chemical Analyser to Government, in his memorandum of the 7th May 1877, stated:— [1]

In the year 1876, 534 Native prisoners were discharged from the Bombay House of Correction. Their average weight on admission was 105 lbs; their increase on discharge was 1 lb. 10¼ oz. each; their daily diet, while in jail, is shown at Table I.*a*., and (Table III.*a*), nitrogen 201·6 grains, carbon 4,011 grains.

These quantities of nitrogen and carbon are less than the quantities requisite for a European of average weight in moderate work. Thus many authorities estimate the quantities required by a European, of average weight in moderate work, at about nitrogen 300 grains, carbon 4,850 grains daily (Table IV., 1 and 2). Letheby estimates the quantities as nitrogen 307 grains, carbon 5,688 grains (Table IV., 3).

Considering the experience of the Bombay House of Correction, that of the Hydarabad Assigned District jails, and this proposal of the Calcutta Jail Conference, there is no doubt that hard-labour prisoners in Indian jails required a diet containing less carbon and nitrogen than the amounts required by Europeans of average weight in moderate work.

If the weight (105 lbs.) of Natives of India as compared with Europeans (150 lbs.) is considered, this difference disappears, for raising the Bombay House of Correction diet, in the proportion of $\frac{105}{150}$, the quantities become nitrogen 288 grains, carbon 5,730 grains,—not greatly different from—

Letheby's estimate for ordinary labour (Table IV., 3), *viz.*, nitrogen 307 grains, carbon 5,688 grains, and the value of the hard-labour diet of English convicts (Table IV., 10), *viz.*, nitrogen 281 grains, carbon 5,140 grains.

There is no theoretical objection to proportioning the food of adults to their weight provided that the work is also proportioned to their weight. Taking the experience of the Bombay House of Correction, that Native prisoners (105 lbs. in weight) did well at jail labour on a daily diet containing nitrogen 201·6 grains, carbon 4,011 grains, I propose three scales, Tables V to IX.

TABLE I.

DAILY ALLOWANCE (exclusive of salt and condiments) of INDIAN JAILS.

(a.) Bombay House of Correction (Labouring Prisoners).

	Ounces.		Ounces.
Rice	8·0	Dhall	5·0
Wheat	4·57	Vegetables	8·0
Bajri	3·43	Fat	·5

On this diet, 534 Native prisoners on hard labour, discharged in 1876, gained in weight (average) 1 lb. 10¼ oz. each. The average weight on admission was 105 lbs. Of the 534 discharged during the year:—

295 gained in weight on an average 4 lbs. 3 oz. each.
102 lost in " " 3 " 8 " "
137 neither gained nor lost weight.
534

Of these prisoners—
130 had been under 3 months in jail.
89 " over 3 and under 6 months in jail.
217 " " 6 and under 12 months "
71 " " 12 and under 24 months "
27 had been 2 years in jail.
534

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[1] The ratio of $\frac{\text{this abstract}}{\text{the original report}} = \frac{1}{1\cdot 7}$

I have been at considerable pains to put the matter in an intelligible light.

The non-labour diet of the Common Jail, Bombay, is the same, less daily—

	Ounces.
Wheat or bajri	2
Dhal	1
Vegetables	2

Indian Dietaries. Daily (exclusive of Salt and Condiments).	Ounces.			Grains.
	Cereals.	Pulses.	Vegetables.	Fatty Matter.
(*b*) Hydarabad Assigned Districts (labour) . .	20·7	4·8	3·4	192
(*c*) New Calcutta scale (labour)	20·0	4·0	6·0	218·75
(*d*) Hydarabad Assigned Districts (non-labour) . .	16·3	4·5	3·4	144
(*e*) Oudh (non-labour)	17·5	1·5	5·5	90

TABLE II.[1]

Factors employed in estimating the value of the various Dietaries, and in constructing Tables VII., VIII., and IX.

			Grains per ounce.
(1.) Rice	Nitrogen.	. .	5·07
(2.) Barley	„	. (E. Smith).	5·81
(3.) Jowari	„	. (Parkes) .	5·97
(4.) Common millet	„	. „ .	6·40
(5.) Maize	„	. (Mean) .	6·93
(6.) Bajri	„	. (Parkes) .	7·00
(7.) Oatmeal	„	. (Letheby) .	8·70

		Grains per ounce.
(8.) Wheat nitrogen .	. (Mean) .	9·22
(9.) Pulse	„ .	17·86
(10.) Succulent vegetables .	„ .	·70
(11.) Average carbon of cereals and pulse		170·0
(12.) „ of succulent vegetables		33·5
(13.) Carbon of fat .	. (Parkes) .	345·6

TABLE III.

	Nutritive value of the Indian Dietaries. (Enumerated in Table 1.)	Grains daily.			
		Nitrogen. 1	Carbon. 2	Nitrogen.[3] 3	Carbon.[3] 4
Labour.	(*a*.) Bombay House of Correction	201·6	4,011	288	5,730
	(*b*.) Hydarabad Assigned District jails. . .	230·5	4,600	329	6,571
	(*c*.) New Calcutta scale for all Indian jails . .	213·2	4,454	305	6,363
Non-Labour.	(*d*.) Bombay Common Jail	165·8	3,434	237	4,906
	(*e*.) Hyderabad Assigned District jails . . .	19[illegible]·9	3,764	278	5,377
	(*f*.) Oudh jails	151·2	3,435	216	4,979

[1] Raised [illegible]/10ths, or as 105 lbs to 150 lbs.

[2] Columns 1 and 2 form the actual diet of natives; and 3 and 4 the theoretic diet of Europeans, by this theory.

[3] See table X.

TABLE IV.

Nutritive value of European Dietaries.	Grains daily.	
	Nitrogen.	Carbon.
1. Standard diet (Moleschott)	316·5	4,862
2. „ (Parkes, Pavy, Church) . .	300	4,850
3. Mean for ordinary labour (Letheby) . .	307	5,688
4. Hard-working labourers (Playfair) . .	389	6,086
5. Active labourers „ . . .	373	4,473
6. Active labourers. Royal Engineers (Playfair)	350	6,504
7. Moderate exercise (Playfair) . , .	291	5,094
8. English soldiers, Home service (Playfair) .	293	5,164
9. „ „ (Parkes) .	266	4,718
English Government Convict Establishments.		
10. (*a.*) Hard labour	281	5,140
11. (*b.*) Industrial employment . . .	256	4,766
12. (*c.*) Light labour	242	4,520
13. Mean of English, Scotch, Welsh, and Irish farm labourers (E. Smith) . . .	300	6,478
14. English farm labourers, lowest of the four (E. Smith)	228	5,810
15. Low-fed operatives average (E. Smith) .	214	4,881
16. Bare sustenance diet (E. Smith) . . .	200	4,300
17. „ „ (Letheby) . . .	181	3,888
18. „ „ (Playfair) . . .	161	· 3,103

1. For a man of Europe, average height and weight (5 feet 6 inches to 5 feet 10 inches, and 140 to 160 lbs.) in moderate work.
2. Average weight (154 lbs.) in moderate work.
3. Mean, calculated from researches of various physiologists, for adult males.
5. Soldiers during war.
6. Calculated from amount of food consumed by 495 men of the Royal Engineers at work at Chatham.
7. Mean of English, French, Austrian, and Prussian soldiers during peace.
16. Average, representing the daily diet of man during periods of idleness.
17. Mean, calculated from researches of various physiologists, representing the amount required by man during idleness.
18. Mean of diet of needle-women in London, certain prison dietaries, common dietary for convalescents, Edinburgh Infirmary, average diet during cotton famine of 1862 in Lancashire.

The three diet scales[1] (Tables V. to IX.) are thus calculated:—

Diet Scale No. 1—This is the Bombay House of Correction diet ([*a*] Tables I. and III.). At 150 lbs., the nitrogen and carbon are above the hard labour diet (Table IV., 10).

Diet Scale No. 2.—This is Scale No. 1, lowered as light labour diet (Table IV., 12) is lower than hard labour diet, as 281 to 242 for nitrogen, and as 5,140 to 4,250 for carbon.

At 150 lbs it is better than the average diet, of low-fed English operatives (Table IV., 15).

Diet Scale No. 3.—Of the three estimates for bare sustenance diet, the mean of the two highest (Table IV., 16 and 17) is nitrogen 190·5, carbon 4,094 grains. Raising this mean in the same proportion as Diet scale No. 1 at 150 lbs. exceeds hard labour diet (Table IV, 10), the figures become nitrogen 195·3 grains, carbon 4,564 grains.

TABLES V. & VI.

Weight of person, in lbs.	Grains daily by scale. No. 1: Labour.		No. 2: Light Labour.		No. 3: Bare subsistence.		Ounces of mixed cereal and pulse which, plus half an ounce of fat, are equivalent to the nitrogen and carbon in each of the three scales. No. 1: Labour.	No. 2: Light labour.	No. 3: Bare subsistence.
	Nitrogen.	Carbon.	Nitrogen.	Carbon.	Nitrogen.	Carbon.			
80	153·6	3,065	132·3	2,688	104·2	2,434	16·98	14·81	13·32
85 . . .	163·2	3,247	140·5	2,856	110·7	2,586	18·10	15·80	14·21
90	172·8	3,438	148·8	3,024	117·2	2,739	19·23	16·79	15·11
95	182·4	3,629	157·0	3,192	123·7	2,891	20·35	17·78	16·00
100	192·0	3,820	165·3	3,360	130·2	3,043	21·48	18·77	16·90
105	201·6	4,011	173·6	3,528	136·7	3,195	22·60	19·76	17·79
110	211·2	4,202	181·9	3,696	143·2	3,347	23·72	20·74	18·69
115	220·8	4,393	190·2	3,864	149·7	3,499	24·85	21·73	19·58
120	230·4	4,584	198·4	4,032	156·3	3,652	25·97	22·72	20·48
125	240·0	4,775	206·7	4,200	162·8	3,804	27·10	23·70	21·37
130	249·6	4,966	21·9	4,368	169·3	3,956	28·22	24·69	22·27
135	259·2	5,157	223·2	4,536	175·8	4,108	29·35	25·68	23·16
140	268·8	5,348	231·5	4,704	182·3	4,260	30·47	26·66	24·06
145	278·4	5,539	239·8	4,872	188·8	4,412	31·59	27·65	24·95
150	288·0	5,730	248·0	5,039	195·3	4,564	32·71	28·64	25·85

[1] By Dr. Lyon.

Tables VII., VIII., and IX., show in what proportions each of the eight cereals—rice, barley, jowári, common millet, bájri, maize, oats, and wheat—must respectively, be mixed with pulse to furnish the nitrogen and carbon shown on each of the three scales of Table V.:—

Weight of person, in lbs.	Ounces of Cereal and Pulse required + ½ an ounce of Fat daily = $\frac{C}{170}$ — 1.	Ounces of cereal to be replaced by Pulse (average Nitrogen per oz. of Pulse, 17·86 grains).							
		Grains of Nitrogen per ounce of							
		Rice—5·07.	Barley—5·81.	Jowari—5·97.	Common Millet—6·40.	Maize—6·93.	Bajri—7·00.	Oatmeal—8·70.	Wheat—9·32.
1	2	3	4	5	6	7	8	9	10
Table VII. *Diet scale No. 1: Labour.*[1]									
80	16·98	5·28	4·56	4·39	3 92	3·29	3·20	·64	— ·35
85	18·10	5·59	4·82	4·64	4·13	3·46	3·36	·63	— ·43
90	19·23	5·89	5·07	4·88	4 34	3·62	3 52	·61	— ·52
95	20 35	6·20	5·33	5·13	4·55	3·79	3·68	·59	- ·61
100	21·48	6·50	5 58	5·37	4·76	3·95	3·84	·57	— ·70
105	22·60	6·81	5·84	5·62	4·97	4·12	4·00	·55	— ·79
110	23·72	7·11	6·09	5·87	5·18	4·28	4·16	·53	— ·88
115	24·85	7·42	6·34	6·09	5·39	4·45	4·32	·50	— ·96
120	25·97	7 72	6·60	6·33	5·60	4·62	4·48	·48	—1·05
125	27·10	8·03	6·85	6·58	5·81	4·78	4·64	·46	—1·14
130	28·22	8·33	7·11	6·82	6·02	4·95	4·80	·44	—1·22
135	29·35	8·64	7·36	7·07	6·23	5·11	4·96	·42	—1·31
140	30·47	8·94	7·62	7·31	6·44	5 28	5·12	·40	—1·40
145	31·59	9·25	7·87	7·56	6·55	5·44	5·28	·38	—1·49
150	32·71	9·55	8·13	7·80	6·86	5·61	5·44	·37	—1·57
Table VIII. *Diet scale No. 2: Light labour.*									
80	14·81	4·47	3·84	3·69	3·27	2·71	2·63	·37	— ·49
85	15·80	4·72	4·04	3·88	3·44	2·84	2·75	·33	— ·60
90	16·79	4·97	4·25	4·08	3·61	2·97	2·88	·30	— ·70
95	17·78	5·22	4·46	4·28	3·78	3 10	3·00	·26	— ·79
100	18·77	5·47	4·67	4·48	3·95	3·23	3·13	·23	— ·88
105	19·76	5·72	4·88	4·68	4·12	3·36	3 26	·19	— ·97
110	20·74	5·97	5·09	4·88	4·29	3·49	3·38	·16	—1·07
115	21·73	6·23	5·30	5·08	4·46	3·62	3·51	·12	—1·17
120	22·72	6·48	5·51	5 28	4·63	3·75	3·63	·09	—1·27
125	23·70	6·73	5·72	5·48	4·80	3·88	3·75	·05	—1·37
130	24·69	6·98	5·93	5·68	4·97	4·01	3·88	·02	—1·46
135	25·68	7·23	6·14	5·88	5·14	4·14	4·00	—·02	—1·56
140	26·66	7·48	6·35	6·08	5·31	4·27	4·12	—·05	—1·66
145	27·65	7·73	6·56	6·28	5·48	4·40	4·24	—·08	— 1·76
150	28·64	7·98	6·77	6·48	5·64	4·53	4·37	—·12	—1·86
Table IX. *Diet scale No. 3 Bare sustenance.*									
80	13·32	2·85	2·23	2·08	1·65	1·09	1·01	—1·27	—2·03
85	14·21	3·01	2·34	2·18	1·71	1·12	1·03	—1·41	—2·22
90	15·11	3·16	2·45	2·28	1·78	1·15	1·05	—1·55	—2·42
95	16·00	3·32	2·56	2·37	1·85	1·17	1·07	—1·69	—2·61
100	16 90	3·47	2·66	2·47	1·92	1·20	1·10	—1·83	—2·80
105	17·79	3·63	2·77	2·56	1·99	1·22	1·12	—1·97	—2·99
110	18·69	3·78	2·88	2·66	2·06	1·25	1·14	—2·11	—3·18
115	19·58	3·94	2·98	2·76	2·13	1·28	1·16	—2·25	—3·37
120	20·48	4·10	3·09	2·86	2·19	1·31	1·19	—2·39	—3·56
125	21·37	4·25	3·20	2·96	2·26	1·34	1 21	—2·53	—3·75
130	22·27	4·41	3·30	3·05	2·33	1·36	1·23	—2·67	—3·94
135	23·16	4·56	3·41	3·15	2 39	1·39	1·26	—2·81	— 4·13
140	24·06	4·72	3·52	3·25	2·46	1·42	1·28	—2·95	—4·32
145	24·95	4·87	3·63	3·35	2·53	1·45	1·30	—3·09	—4·51
150	25·85	5·03	3·74	3·45	2·60	1·48	1·32	—3·23	—4·70

[1] The value of the labour in foot-tons is nowhere given.

Examples of employing Tables VII., VIII., and IX.

Average weight of individuals being 105 lbs., Table V. shows that the nitrogen and carbon daily required is, in grains—

	Nitrogen.	Carbon.
On Scale 1.—The labour	201·6	4,011
„ 2.—Light labour	173·6	3,528
„ 3.—Bare sustenance	136·7	3,195

Table VI. shows that this nitrogen and carbon may be supplied by the following quantities of mixed cereal and pulse, plus half an ounce of fat, ghee or oil :—

For Scale No. 1	22·60 ounces.
„ „ 2	19·76 „
„ „ 3	17·79 „

Tables VII., VIII., and IX. show the proportions which the cereal and pulse should bear in the 22·60 ounces required by Scale 1; in the 19·76 ounces, on Scale 2; and in the 17·79 ounces, on Scale 3.

Take the 22·60 ounces of cereal and pulse required for men (105 lbs. in weight) on Scale 1. Table VII shows opposite 105 lbs. in the column headed "Rice," the number 6·81—that is, if rice is given, 6·81 ounces out of the 22·60 ounces of mixed cereal and pulse must consist of pulse, and the remainder (15·79 ounces) of rice. The calculation may be proved by the factors in Table II :—

Rice	15·79 oz. × 5·07 grs.	= 80·0	grains of nitrogen.
Pulse	6·81 „ × 17·86 „	= 121·6	„ „
Mixed rice and pulse = 22·60 oz.		= 201·6	„ „
	22·60 oz. × 170	= 3,842	grains of carbon.
half an ounce fat		= 172	„ „
	Total	= 4,015	„ „ which agrees with Table V.

If the cereal is bájri, in Table VII., opposite 105 lbs., is 4·00. Hence, of the 22·60 ounces of mixed cereal and pulse (column 2, Table VII.), 4·00 ounces must be pulse.

Bájri . . .	18·60 oz. × 7·00 grs.	= 130·20	grains of nitrogen.
Pulse	4·00 „ × 17·86 „	= 71·44	„ „
Mixed bájri and pulse 22·60 oz.		= 201·64	„ „

Where, as in column 10, Tables VII., VIII., and IX., and in column 9, Tables VIII. and IX., the figures are preceded by a minus, no pulse is required, the number of ounces of the cereal heading the column shown opposite the weight containing more than the required nitrogen: the 22·60 ounces required on Scale 1, for men averaging 105 lbs. in weight, contain in the case of wheat 22·60 × 9·22=208·37grains of nitrogen, a quantity slightly in excess of that (201·6) required by the scale, Table V. These minus figures come into use when mixed cereals are employed :—

Men of 120lbs. require daily, on scale 1 :—

Nitrogen, Table V. .	230·4 grains.	Cereal and pulse, Table VI. .	25·97 ounces.
Carbon . . .	4584·0 „		

If the cereals are rice and bajri in equal proportions, we have :—

Rice	= ½ (25·97 oz. — 7·72 oz.)	= 18·25×½ = 9·12 oz.
Bájri	= ½ (25·97 oz. — 4·48 oz.)	= 21·49×½ = 10·75 „
Pulse	= ½ (7·72+4·48)	= 12·20×½ = 6·10 „

Or otherwise :—

Rice	= 9·12 oz. × 5·07 grs.	= 46·24	grains of nitrogen.
Bajri	= 10·75 „ × 7·0 „	= 75·25	„ „
Pulse	= 6·10 „ × 17·86 „	= 108·95	„ „
Mixed cereal and pulse	= 25·97 „	= 230·44 [1]	„ „
Carbon . . .	= 25·97 „ × 170 grs.	= 4,415	„ carbon.
Half an ounce of fat .	=	= 172	„ „
Total carbon . . .		= 4,587 [1]	„ „

If the cereals are rice and wheat, we have :—

Rice . . .	½ [25·97 oz. — 7·72 oz.]	= 18·25×½ = 9·12 oz.
Wheat . . .	½ [25·97 „ — (-1·05) oz.]	= 27·02×½ = 13·51 „
Pulse . . .	½ [7·72 „ + (-1·05)]	= 6·67×½ = 3·34 „

Or otherwise :—

Rice . . .	9·12 oz. × 5·07 grs.	= 46·24	grains of nitrogen.
Wheat . . .	13·51 „ × 9·92 „	= 124·56	„ „
Pulse . . .	3·34 „ × 17·86 „	= 59·65	„ „
Mixed cereals and pulse	25·97 „	= 230·45 [1]	„ „

Carbon as before.

Remarks on the Diet Scales.

1. It must be understood that the weights are those of individuals fairly nourished, not weights of individuals reduced by disease or famine.

2. The Tables VII., VIII., and IX. are on the supposition that grains fairly clean and free from husk are employed. Should this not be the case, a proportionate allowance must be made. An increase of 4 per cent. on the quantities shown in the tables would suffice as compensation for husk.[2]

[1] These figures agree with those in Table V., scale 1.
[2] See page 71.

3. Where a cereal is so deficient in nitrogen that a large proportion of it requires to be replaced by pulse, it is desirable to mix it with a more nitrogenous cereal, so that a smaller quantity of pulse may suffice, *e.g.*, rice, in a great degree on Scale 1, and in a less on Scale 2 (Tables VII. and VIII., column 3), may be mixed with wheat or bajri.

4. Where a cereal is so rich in nitrogen that according to the tables little or no pulse is required to be mixed with it, no objection exists to replacing a larger proportion of it by pulse than is by the tables shown to be necessary, provided always that the total quantity of pulse given is kept within reasonable limits, say under 4 to 5 ounces.

5. If on any of the scales the quantity of fat given is raised from ½ an ounce to 1 ounce, a withdrawal of 1½ ounces of cereal and an addition of ½ an ounce of pulse serves to compensate for the change.

The Limits of Error of the Tables.

The amount of carbon required regulates the aggregate quantity of cereal and pulse, while that of nitrogen regulates the ratio of $\frac{\text{pulse.}}{\text{cereal.}}$

The three scales of Table V. to IX. are comparable (weight for weight)—

Scale No. 1, with English convict hard labour diet,
" 2, " " light "
" 3, with a mean bare sustenance estimate for a man of Europe,

and as regards carbon are 11·5 per cent. richer than the European scales.

The nitrogen error of the scales is difficult to estimate. An error due to *over-estimation* of the quantity of nitrogen in a cereal or pulse would always to some extent be met by an increase of the aggregate quantity of cereal and pulse laid down in Table VI. Any *minus* nitrogen error must be met by increased replacement of pulse for cereal.

Table X. showing the data from which the factors of Table II. have been derived.

According to	Grains per ounce of — Nitrogen in cereals. Rice.	Barley.	Jawari.	Millet.	Bajri.	Maize.	Oats.	Wheat.	Nitrogen in pulses. Jhoor Dhall.	Indian Pea.	Bhoot.	Kulti.	Mussur.	Gram.	Mulnunds.	Urid.	Muthl.	Muth.	Mug.	Nitrogen in vegetables. Potatoes.	Carrots.	Carbon in vegetables. Potatoes.	Carrots.
Letheby	4·34	...	...	...	...	7·66	8·7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Polson	4·96	9·12	...	...	...	6·08	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poggiale	5·39	5·39	...	...	...	6·84	7·74	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lyon	5·77	...	7·01	...	...	...	...	10·15	20·56	...	...	...	16·28	14·0	...	18·29	19·73	20·43	15·7	...	...	...	...
E. Smith	...	5·81	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Payen	...	7·68	...	...	...	7·44	...	9·98	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fehling and Faisst	...	8·14	...	...	...	...	7·87	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mayer	...	7·85	...	...	...	6·62	6·49	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Parkes	...	...	5·97	6·40	7·0	...	...	7·6	...	...	...	...	...	15·69	...	...	...	...	...	0·1	0·4	49	18
Church	...	...	5·35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peligot	...	...	...	...	...	...	...	10·09	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wanklyn	...	...	...	...	...	...	...	8·29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Forbes-Watson	...	...	...	...	...	...	...	...	15·31	17·09	26·84	16·08	17·38	...	...	...	...	...	...	...	...	...	...
Gray	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16·76	...	...	...	...	...	...	...	...
Grains of carbon in cereals and pulses.																							
Parkes	176·0	...	...	183·16	...	176	172	169	...	......				...	......			...	...				
Lyon	179·10	...	161·3	...	...	...	...	177·4	187·3	......				169·89	......			168·87	158·68				
Fehling and Faisst	...	160·5	...	...	...	...	...	...	...	......				...	......			...	...				
Church	...	164·6	...	172·58	...	...	...	...	...	......				...	......			...	...				

The Secretary of State, in his despatch No. 43, of the 10th May 1877, to the Governor-General of India in Council, observes:—

Accounts reach me from many quarters expressing serious fear that insufficiency of relief food on famine works, specially in Madras, is producing diseases of exhaustion, and will end in great mortality. Matter requires extreme vigilance, and if there is any real cause for apprehension, it will be better not to place too much restriction on Local Government. Our medical authorities are alarmed by accounts, official and other.

Dr. J. B. Lyon, Chemical Analyser to Government, in his memo. of the 12th May 1877, as to the dynamic value of the task exacted from labourers on relief works, states:—

It seems certain that work equal to 500 tons lifted one foot is an extremely hard day's work, which, perhaps, few men could continue to do: 400 foot tons is a hard day's work, and 300 foot tons an average day's work, for a healthy man.[1]

The Reverend Professor Haughton, M.D., has shown that walking on a level surface is equivalent to raising $\frac{1}{20}$ part of the weight of the body through the distance walked.

Let W = weight of the person.
„ W' = „ carried.
„ D = distance walked in feet.
„ C = 20 = co-efficient of traction.

then the number of tons raised one foot $= \frac{(W + W')\, D}{C \times 2{,}240 \text{ lbs.}}$

Taking 105 lbs. as the weight of a Native labourer, and reducing Parkes' estimate of average day's work in the ratio of this weight to 150 lbs. (the average weight of a man of Europe) the average day's work of a Native $= \frac{300 \text{ foot tons} \times 105 \text{ lbs}}{150 \text{ lbs.}} = 210$ foot tons.

Using Haughton's formula, a man weighing 105 lbs. carrying 10 lbs., walking on level, does work equal to lifting 13·51 tons one foot per mile walked;

Also $\frac{210}{13 \cdot 51} = 15 \cdot 55$. Hence, a man weighing 105 lbs. carrying 10 lbs. walking on a level 15·55 miles, does work equal to raising 210 tons one foot.

Colonel Merriman, R.E., in his letter No. 1516, of the 5th March 1877, says:—

Upon irrigation works in ordinary times, the lift not exceeding 4 feet and the lead not exceeding 50 feet, 100 cubic feet of black or red soil can be excavated and disposed of by the united labour of one man, one woman, and one child, and therefore at the present time 75 cubic feet only is to be exacted. * * * I am of opinion that under the existing orders of Government the present task set by Colonel Finch is too high, and should be reduced to 75 cubic feet for Public Works Department, and to 50 cubic feet for Civil Agency Works.

Estimation of the Dynamic value of the task of excavating and disposing of 75 cubic feet of black or red soil with a 4-foot lift and 50 feet lead, (the task demanded on relief works under Public Works superintendence from a man, woman, and child):—

The task is—

1. Excavating and filling baskets, say 3 baskets to a cubic foot.
2. Lifting the baskets on to the heads of the carriers, say 5½ feet; say 80 lbs. of earth to the cubic foot; 2 lbs for weight of basket; each basket will carry 26·66 lbs. of earth.
3. Carrying away the earth and returning with the empty baskets.

Excavating and filling baskets.—A rather low estimate of a day's work for an English labourer employed in excavating earth and filling wheelbarrows is 270 cubic feet. If the dynamic value be 350 foot-tons, the dynamic value of 75 cubic feet $= \frac{75 \times 350}{270} = 97 \cdot 2$ foot-tons.

Lifting the baskets on the carriers.

5½ feet	= lift, or the height of the man.
75 c. f.	= work of excavation = 97·2 foot-tons.
80 lbs.	= weight of 1 cubic foot of earth.
3× 2 lbs.	= 6 lbs. = weight 3 baskets, which together can hold 1 cubic foot of earth.

Then the work done $= \frac{5\frac{1}{2} \text{ ft.} \times 86 \text{lbs.} \times 75 \text{ c. f.}}{2{,}240 \text{ lbs.}} = 15 \cdot 84$ foot-tons.

Carrying—

105 lbs.	= weight of the body.
5 lbs.	= weight of cloths and baskets.
26·66 lbs.	= „ earth lifted, in one basket, 4 feet high.
75 × 3	= 225 = number of baskets (trips) required to carry 75 cubic feet of earth in baskets, 3 of which carry one cubic foot of earth.
$\frac{50 \text{ ft.}}{20}$	= 2·5 ft. height due to lead.

Then the work done in 225 trips is

$$= [(105 + 5 + 26 \cdot 66) \text{ lbs.} (4 + 2 \cdot 5) \text{ ft.} + (105 + 5) \text{ lbs.} \times 2 \cdot 5 \text{ ft.}] \frac{225 \text{ trips}}{2{,}240 \text{ lbs}}$$
$$= [136 \cdot 66 \text{lbs.} \times 6 \cdot 5 \text{ ft.} + 110 \text{ lbs.} \times 2 \cdot 5 \text{ ft.}] \frac{225}{2{,}240}$$
$$= 116 \cdot 85 \text{ foot-tons.}$$

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[1] Parkes' Manual of Hygiene, page 389.

Hence *total* work done

= (97·2 + 15·84 + 116·85) foot-tons.

= 230 foot-tons.

If the man's work be one-half of the total done by man, woman, and child, the value will be 115 foot-tons by a man 105 lbs. in weight, under the Department Public Works.

Taking 210 foot-tons as an average day's work for a man (Indian) of 105 lbs. weight, the task of 115 foot-tons is only 54·75 per cent. of an average day's work.

Under Civil Agency, the task of 76⅔ foot-tons is only 36·6 per cent. of an average day's work.

The work demanded from a man of 105 lbs. weight is:—

a.—Under the Department Public Works $= \frac{\text{115 foot-tons}}{\text{13·51 foot-tons}} = 8·52$

b.— „ Civil Agency $= \frac{\text{76⅔ foot-tons}}{\text{13·51 foot-tons}} = 5·68$

Or the man (*a*) carries 10 lbs. a distance of 8·52 miles
„ (*b*) „ 10 lbs. „ 5·68 „

That Natives of India are capable of doing work in proportion to their weight, reckoning 300 foot-tons as an average day's work for a man weighing 150 lbs., the two following instances may be given:—

a. An ordinary day's work for 12 palki-bearers is to carry a palki down from Matharan to Narel and bring it back from Narel to Matharan with a person inside. The distance from Narel to Matheran is 7 miles; the height of Matheran above Narel is 2,377 feet. The palki weighs 195 lbs., and the bearers weigh 117 lbs.—115 lbs. + 2 lbs. (for clothes). Taking the up-journey only, and supposing the individual inside the palki to weigh 125 lbs., the load of each bearer:—

$= \frac{\text{195 lbs. + 125 lbs.}}{12} + \text{117 lbs.} = \text{143·66 lbs.}$

The work done:—

$= \text{143·66 lbs.} \times (\text{2,377 feet} \times \frac{\text{7 miles} \times \text{5,218 ft.}}{20})$ foot lbs.

$= \frac{\text{143·66 lbs.} \times \text{4,325 ft.}}{\text{2,240 lbs.}} = \text{270·96 foot-tons.}$

In addition, there is the walk back.

b. The recognised load of a Narel kuli is 40 lbs.; by short cuts the distance is reduced from 7 to 5 miles.

The work done in ascending is:—

$(117+40)\ \text{lbs.} \times (\text{2,377 ft.} + \frac{\text{5 miles} \times \text{5,280 ft.}}{20})$ foot lbs.

$= \frac{\text{157 lbs} \times \text{3,697 ft.}}{\text{2,240 lbs.}}$ foot-tons = 259 foot-tons.

In addition, there is the walk back.

The Secretary of State, in his letter No. 44, of the 17th May 1877, to the Governor-General of India in Council, said:—

2. I do not propose to make any further remarks on the vexed question relative to the sufficiency of the scale of rations allowed to labourers on relief works, especially as Sir R. Temple has now returned to Bombay and assumed charge of the Government of that presidency.

The Governor of Madras, in his telegram of the 23rd May 1877, to the Viceroy, Simla, said:—

Obliged to raise lowest scale to same as first,—to one pound and one anna for adult men performing task equal not less than half ordinary task. Full particulars will be sent officially. Some officers of experience had found it necessary to raise without waiting sanction. Will write fully.

Surgeon-Major W. R. Cornish, F.R.C.S., Sanitary Commissioner for Madras, in his letter of the 30th May 1877, to the Government of Madras, says:—

2. I beg to state that the data of Surgeon-Major Lyon's paper do not justify the conclusion which Sir Richard Temple has founded on it:—

That a ration based on a pound of grain is sufficient for the sustenance of persons not performing severe labour.

I cannot find any statement in Mr. Lyon's paper in which he expresses such an opinion.

3. In all the scales of diet Surgeon-Major Lyon has proceeded on the assumption that—

there is no theoretical objection to the proposition that the quantity of food required by adults is proportionable to their weight, provided, of course, always that the quantity of work expected from them is likewise proportioned to their weight.

This procedure is fallacious.

4. Surgeon-Major Lyon argues that a human being requires food in proportion to his weight, and furnishes tables showing the nitrogenous and carboniferous food necessary for persons weighing from 80 to 150 lbs., under the conditions of hard labour, light labour, and complete rest.

5. If there were any relation between a person's weight and his capacity for assimilating food and effecting work, there might be reason for stating that men require food in proportion to

their weight. But we know that there is no such correspondence—that in a number of persons the power to work diminishes as the body increases in weight.

6. The experience of the superficial observer must afford instances of persons of large appetite who never get fat, and of persons large eaters who lay on an amount of flesh that becomes a serious burden to them; with regard to these persons it is proposed that they should be fed, the thin and the stout alike, in proportion to their weight.

7. The theory that work can be performed in proportion to weight is still more wide of the field of practical observation. According to this theory "the Claimant," weighing 22 stone, was more fit to endure hard labour than he was six months after, when he had lost a fourth of his weight; and athletes, instead of striving to keep their weight down, ought, according to this theory, to take means to lay on extra flesh. There is, in fact, no relation between the ability and capacity for labour and mere weight of body.

8. There are so many things more important than weight of body, bearing on the necessity for food, that it is surprising to find a chemist laying so much stress on weight in determining the food necessary for health. Questions connected with age, race, temperament, habit of body, slowness or rapidity of vital changes, are set aside as of no value in comparison with a theory that the body needs sustenance in proportion to its bulk. Mr. Lyon would admit that a very different amount of nutriment is needed for a spare man of large frame, and another of equal weight, but whose size depended on an abnormal deposition of fat; yet this weight theory makes no distinction between the requirements of the two.

9. Mr. Lyon has taken 150 lbs. as the average weight of male Europeans and 105 lbs. as the average weight of natives of India. According to Sir R. Christison's experiments in Perthshire, the average weight of Scotchmen was 140 lbs., and from some experimental measurements and weighings made of various castes in Madras some years ago, Dr. John Shortt found that the average weight of male adults of the fishermen, Boyas, and other labouring castes, was about 120 lbs., and of certain other castes from 114 to 118 lbs. As regards the classes suffering from famine in this part of India, there is not that great difference in weight and bulk of the people as a whole which would justify a very marked reduction of food in comparison with European diets.

10. The argument in regard to food, and average weight and bulk of the body, must not be pushed too far. With certain limitations, it is useful in the construction of dietaries, but the facts of most importance are—

(1) The habits of the people themselves in the choice of food, its nature and amount.
(2) the daily waste which the body suffers from vital changes.

Observations on the former head are sufficiently accurate, but in India we have never had any scientific determination of the daily waste of the body under defined conditions of diet and labour.

11. There can be no question as to the capacity of the labouring classes of India for hard work, provided they get food in amount and quality to satisfy their necessities. While our streets are lined with scare-crows of humanity, with scarcely vitality enough to drag themselves along, there may be seen on the Madras beach magnificent specimens of working men whose strength and powers of endurance are not to be surpassed by any other people in the world.

12. A common task of four men is to take from the beach and to load on a hand-cart 22 bags of rice, each bag weighing 164 lbs. This load they drag to the railway station, distant two miles, unload, and return empty to the breach. Four or five trips go to an average day's work.

In carrying rice bags from the beach to merchants' warehouses, an average cooly will take up a bag (164 lbs), carry it 60 to 100 yards over loose sand, a further distance of 30 or 40 yards on good road, and up a flight of steps to a loft, and will manage 100 of these trips in a day.

13. Work of this nature is not performed on famine wages, even of the highest scale. A cooly carrying rice from the beach to warehouses, or from the beach to the railway station, can earn 1 rupee, or even 1¼ rupee a day, and his diet includes a plentiful supply of meat or fish and ghee, in addition to his rice and curry.

14. Surgeon-Major Lyon bases his tables of diets on the experience of the Bombay House of Correction, where the prisoners on hard labor gained in weight on the average 1 lb. 10¼ ozs. each while existing on the scale of food for labouring prisoners. The increase or decrease in weight of the people subjected to a dietary, with certain reservations and limitations, affords indications regarding the sufficiency of the food; but the weight record is only a portion of the evidence necessary. Surgeon-Major Lyon says nothing about the sickness and mortality of the prisoners in the Bombay House-of-correction. It is essential to know to what extent they suffered from bowel disorders, anæmia, scurvy, &c., as well as the general rate of mortality, before coming to the conclusion that the hard-labour scale of diet was sufficient to keep the people in ordinary health. As to the proposed diets, there is no evidence to prove their sufficiency, and all that can be said is that the scales are based on a theory which in some respects has been shown to be fallacious.

15. We have ascertained in certain Madras jails that where punishment by restrictions in food, so as to reduce the daily amount of nitrogen to much less than 200 grains, has been persevered in, there has been loss of strength, of health, and of life, and this knowledge would make me sceptical as to the sufficiency of a "bare subsistence" diet, containing 136·7 grains of nitrogen. In his table of "Food Equivalents," I observe that Mr. Lyon was more liberal in his views, for he there speaks of 200 grains of nitrogen and 3,070 grains of carbon as

"almost a starvation diet." Certainly, a dietary like the No. 3 scale of Mr. Lyon would never commend itself to those practically acquainted with the subject of the connection of food with vital force, and, based as it is on mere theory, it is to be regretted that a subsistence ration, from 104·2 to 195·3 grains of nitrogen, according to the person's weight, was ever put forward.

16. Mr. Lyon proposes to eke out the deficient nitrogen of various cereal grains by the addition of pulse, so as to make the total nitrogen of the food equivalent to the needs of the body, as reckoned by the weight theory.

Take the case of an obese native merchant accustomed to feed on rice, and sentenced to hard labour. His daily diet would consist of 21 ounces of rice, and 9·55 ounces of gram or dhall. Under no circumstances could he digest the nutriment contained in 9·55 ounces of that gram in 24 hours. If he failed to digest the dhall, its nitrogenous principles could not assist in the nutrition of the body. Mr. Lyon has omitted the necessary caution enjoined in his former paper on "Food Equivalents:"—

Regard should be paid to the relative proportions in which, by custom or habit, articles of food are consumed by a population. This indicates a limit of digestibility which ought not to be greatly exceeded.

18. A study of the condition of the people subjected to slow starvation shows that there is a point from which there is no possible return to health and strength. Food of the most nutritious character is then powerless to save life. Chemical theories as to the composition of food do not in the least help us to explain why people should die with an abundance of nutritious food within reach; but if we examine the bodies of those who have died of this form of starvation, we shall find that the delicate structures engaged in the assimilation of nutriment from food have wasted and undergone degenerative changes, so as to unfit them for office. It has been my duty to observe many thousands of such cases within the last few months, and the contemplation of the causes leading to these slow, but certainly fatal, changes in the assimilative structures of the human body, lead me to look with grave suspicion upon all proposals for "bare subsistence" dietaries, especially when such proposals are known to be out of harmony with the natural habits of the people to whom they are to be applied.

19. The recent experience of nearly every famine officer who has observed the practical effects of the reduced wages has led him to believe, and publicly record his opinion, that the subsistence scale of wages was perilously low; while as regards our destitute poor in relief camps, we have had abundant evidence of the fact that a more liberal scale of food than that purchasable for a famine relief wage is inadequate to restore health, or to arrest decay.

Surgeon-Major W. Dymock, in his letter of 1st June 1877, to the Editor, "Bombay Gazette," says:—

Armand Gautres—after mentioning that for people leading a sedentary life 0·2 grammes of nitrogen and 4·202 of carbon per kilogram of body weight daily, have generally been accepted as a sufficient allowance for the maintenance of a perfect state of health—says that the average weight of the Mobiles was 63 kilos (138 lbs. 12¾ oz.), and that these men being employed upon severe duties in the trenches during the siege of Paris during winter months, and receiving only 12·5 grammes of nitrogen and 263 of carbon per diem preserved generally a good state of health. He remarks that the bare subsistence ration appears to be too liberal. [1]

Each man received daily:—	Grammes.			
	Food.	Dry protein matters.	Hydrates of carbon.	Fatty matters.
Fresh meat (if preserved, 100 grammes)	175	33·25	—	3·15
Rice or beans	80	5·14	62·04	0·34
Bread	250	18·75	132·70	0·75
Biscuits	250	22·49	159·20	2·09
Coffee ration	30 }	3·30	12·50	—
" purchased	25 }			
Sugar ration	20 }	—	40·	—
" purchased	20 }			
Wine	125	—	—	1·25
Brandy	75	—	—	0·30
Total grammes	—	82·93	406·44	49·83

We draw the following conclusions:—

Proportion of nitrogenous substances 1; of hydrates of carbon 4·9; and of fatty matters 0·6. Quantity of nitrogen supplied in 24 hours, 12·5 grammes = 193 grains.

		Grammes.	
Quantity of carbon	Protein matters	44	Total 263 grammes = 4,060·9 grains.
	Hydrates of carbon	181	
	Fat	38	

[1] 1 Gramme = 15·4323 grains.
1 Kilogramme = 1,000 grammes = 2·20462125 lbs.

To adapt this dietary to natives of India, omit all or part of the meat, insert dâl for rice or beans, increase the bread, omit coffee, wine, and brandy, and insert oil and condiments.

The "Times of India" Newspaper, 13th December 1877, said:—

The Bombay Government could not venture to test the 1 lb. ration, pure and simple, by applying it to all the Presidency gaols and recording averages of death, sickness, and increase or decrease of weight; but they are now endeavouring to show that the dietary scale for prisoners was excessive.

The experiment has lasted six months, and the results are disastrous:—

		Prisoners sentenced to hard labour.		
		Old scale.	New scale, July 1877.	For 3 months, women and boys (non-labourers).
Country grain, daily	oz.	24	20	19
Meat, including bone, twice weekly	oz.	5	4	0
Dhall, five times weekly	oz.	5	4	3
Linseed oil, daily	oz.	1	0¼	4
Vegetables, "	oz.	8	6	6
Salt, "	dr.	6	6	6
Curry stuff "	dr.	4	4	4

The prisoners are unable to execute their task properly after a few weeks' trial of the new ration; more than double the average number have to be accommodated in hospital; the death-rate is five times as great as usual.

The men committed without hard labour have not yet suffered severely; those sentenced to hard labour for three months have suffered cruelly. Experts in the gaols say that the reduced ration *might* perhaps suffice for people without labour; but that it begins to tell immediately labour is demanded.

In the Bombay House of Correction the rate of mortality was:—

In 1879	19·5 per thousand.
After the introduction of the new scale	96·0 "

In the hospitals, food is given liberally; four ounces of alcohol are daily given if required. But for these periods of recruiting, the prisoners would suffer more than they do. The cost of restoring them cannot be far short of the saving effected in diet.

Gaolers, doctors, and regulation-visitors . . . are almost as loud in their complaints as the unhappy prisoners themselves.

Sir R. Christison, in his letter of the 18th April 1877, says:—

The average weight of prisoners—

At Perth (Scotland) is 140 lbs.
In Oude (India) is 106 "

The dietary proposed by Sir R. Temple is both insufficient in quantity and ill-chosen.

Nothing is more certain than that the nutriment in a dietary must increase with the amount of labour.

In observing the effect of any experimental dietary, . . . the main test is to weigh men every 14 days. If there is a progressive diminution, the dietary is faulty.[1]

In 1871, in Oude, Dr. Sutherland gave the prisoners on hard labour the following food:—

		Ounces.
Daily	Wheat flour, coarsely sifted, in cakes	20·25
	Grain, parched	4·5
	Salt	0·23
	Pepper	0·08
Four days weekly	Dhall	4·5
	Ghi, with pepper and salt	0·08
Three days weekly	Fresh vegetables	12·15
	Oil, with pepper and salt	0·03

[1] In a lecture delivered before the National Training School of Cookery, Professor Church stated:—

To keep a man, 154 lbs. in weight, in health and work, 300 grs. of nitrogen and 4,900 grs. of carbon are daily required.

Turnips at ½ cwt. per diem would have to be taken; ten oz. of cheese and twenty oz. of rice would supply what was required.

Bread, eggs, and bacon; or bacon and beans, furnish a good dieting for muscular work.—*Pioneer* Newspaper, 23rd December 1879.

The men went out 1 lb. heavier than on admission. Maize and millets were sometimes substituted for wheat, the quantity being increased to 24·7 ounces.[1]

Abstract of a note on Famine Dietetics, by Surgeon-Major I. B. Lyon, F.C.S.,[2] *Professor of Chemistry and Chemical Examiner to the Government of Bombay.*

What should be considered in framing an Indian famine wage?

On what system should, in famine times, labour be exacted from relief recipients?

When is it more economical to exact work from relief recipients than to supply them with food, exacting no work in return?

The first of these three questions includes—(*a*) what is the quantity of food which relief recipients will require? (*b*) how should the wage be framed so as to supply it?

Natives of India differ in average weight from Europeans. Thus the average weight of 534 prisoners in the Bombay House of Correction in 1876, was 105 lbs; that of the inhabitants of Sind and the Panjab is much higher than this. Parkes, Letheby, Church, and other authorities on dietetics of Europeans, adopt 150 lbs. as the average weight.

The purposes for which the body requires food are to provide—

1. Heat by oxidation or combustion sufficient to maintain the temperature of the body.
2. Energy by oxidation or combustion, sufficient to carry on the internal work of the body, circulation, respiration, &c.
3. Material for the repair of the waste of the body.
4. Energy by oxidation or combustion sufficient for the performance of external work.

The requirements of the body under the first three of these four heads must be proportional to the weight of the body. If by exacting work in proportion to the weight we bring the requirements of the body (under the fourth head) also into proportion to the weight, the whole food-requirements become proportional to the weight. This argument appears to Dr. Lyon unanswerable.

All the nutritive organic constituents of food belong to one of three classes,—1, fats; 2, albuminates; 3, carbohydrates;—and every dietary ought to contain a small quantity of fats, a larger quantity of albuminates, and a still larger quantity of carbohydrates. These alimentary principles are, however, not found in foods in the proportion in which they ought to exist in dietaries; hence the constructing of a dietary consists in proportioning the food materials in such a way that the requisite quantity of each of these three classes of principles shall be present. To compare the nutritive value of dietaries, each dietary must be reduced to the common terms of fats, albuminates, and carbohydrates.

1. The "fats" are of the nature of fat or oil, obtained indifferently from vegetable or animal foods, containing carbon, but no nitrogen.
2. The "albuminates" contain both nitrogen and carbon, derived indifferently from vegetable or animal foods.
3. The "carbohydrates" are of the nature of starch, sugar, and the like, chiefly derived from vegetable foods, and, like the fats, containing carbon, but no nitrogen.

From this it follows—

(*a*) That, as only the albuminates contain nitrogen, the amount of nitrogen in a food dietary is equivalent to the amount of albuminates present.

(*b*) That as all three classes of principles contain carbon, a statement of the amount of carbon in a dietary is equivalent to the total amount of all three classes of principles, *viz*, fats, albuminates, and carbohydrates present in the dietary.

(*c*) The nutritive value of a dietary may be ascertained by a statement of the amount of fat, nitrogen, and carbon, or by a statement of the amount of fats, albuminates, and carbohydrates.

The fats contain 1,000 grains of carbon in three ounces; the cereals and pulses, 1,000 grains of carbon in six ounces.[3]

Hence each ounce of fat is in respect to carbon equal to two ounces of cereal or pulse.

The cereals and pulses consist of albuminates and carbohydrates, but the pulses contain more, and the cereals less, albuminates in proportion to carbohydrates, than is required in a dietary; hence when a dietary consists of fat, cereals, and pulse, we can ensure a sufficient quantity of albuminates or of nitrogen by proportioning the amount of the pulse to that of the cereal.

Hence the value of a dietary consisting of cereals, pulse, and fat, provided that a sufficient quantity of fat and pulse is present, may be stated in ounces of cereals and pulse, ***reckoning fat as double its actual weight.***

The term *pulse-cereal* expresses a mixture of pulse, cereal, and fat, in which the fat reckoned at double its weight, is sufficient, and in which is present also sufficient pulse to supply

---

[1] Two ounces = 1 chittak in the North-Western Provinces.

[2] This is taken from the *Indian Medical Gazette* for November and December 1879 and January 1880.

The ratio of $\frac{\text{this abstract}}{\text{the original}} = \frac{1}{1 \cdot 7}$.

Pains have been taken to put this paper in an intelligible form.

[3] These amounts of carbon are under, rather than over-stated. Three ounces of pure fat contain 1,037 grains of carbon, and few of the cereals and pulses in India contain less than 166·6 grains of carbon per ounce or 1,000 grains in 6 oz.

the required nitrogen. Pulse-cereal will then represent the most advantageous mixture of pulse, cereal, and fat, every six ounces of which corresponds to 1,000 grains of carbon.

European dietaries, average weight 150 lbs.	Grains carbon daily.	Equivalent in ounces pulse-cereal.	Serial number.
Letheby's estimate, generally accepted for bare subsistence . . .	4,000	24·0	1
English convict prison light labour dietary	4,520	27·2	2
Do. do. industrial employment dietary	4,766	28·6	3
E. Smith's estimate of the mean value of the dietaries of low-fed operatives	4,880	29·3	4
Moleschott's estimates for a man in moderate work	4,862	29·2	5
Church's estimate for a man (154 lbs.) doing a fair amount of work, and taking moderate exercise	4,900	29·4	6
Letheby's estimate for routine work	5,191	31·2	7
English convict hard labour dietary (generally stated to be insufficient for full out-door labour)	5,289	31·8	8
Letheby's estimate for ordinary labour	5,688	34·2	9
Playfair: mean of the dietaries of well-fed operatives	5,837	35·1	10
Playfair: dietary of Royal Engineers at work	6,494	39·0	11
Church: hard-working artisans	6,500	39·0	12
Letheby's estimate for active labour	6,823	41·0	13
Playfair: blacksmith's dietary	6,864	41·2	14

Summarising, we have for—

a. Bare subsistence, 4,000 grains carbon =24 ounces pulse-cereal. No. 1.
b. Moderate work, 5,000 „ =36 „ „ No. 4.
c. Ordinary labour, 6,000 „ =36 „ „ No. 9.
d. Very hard labour, 7,000 „ =42 „ „ No. 13.

As the quantity of food required is proportional to the weight, provided the work exacted is also proportioned to the weight, and as

$$24=150 \times \cdot 16$$
$$30=150 \times . 20$$
$$36=150 \times . 24$$
$$42=150 \times . 28$$

the requirements of the body, in ounces, pulse-cereal, per diem for bare subsistence, moderate labour, ordinary labour, and very hard labour may be ascertained by multiplying the body-weight in lbs. by ·16, ·20, ·24, and ·28.

Authorities agree that for adults averaging 150 lbs. 300 foot tons is an average day's work, and 450 foot tons a very hard day's work, and 150 foot tons a moderate day's work.

Let W = body-weight in lbs.,
FT = Foot tons of work effected,
Q = ounces pulse-cereal.[1]

Then $W \times 0{\cdot}16 \quad F.T. \times 0{\cdot}04 = Q.$ represents the requirements of the body.

The table which follows shows the least quantity of pulse-cereal required to supply the quantities of carbon (with sufficient nitrogen) stated in the first column:—

Grains carbon.	Weight of persons, in lbs.										
	150	145	140	135	130	125	120	115	110	105	100
	Ounces of pulse-cereal.										
4,000	24·0	23·2	22·4	21·6	20·8	20	19·2	18·4	17·6	16·8	16·0
4,200	25·2	24·4	23·5	22·7	21·9	21	20·2	19·3	18·5	17·7	16·8
4,400	26·4	25·5	24·7	23·8	22·9	22	21·1	20·3	19·3	18·5	17·6
4,600	27·6	26·7	25·8	24·9	23·9	23	22·1	21·2	20·4	19·3	18·4
4,800	28·8	27·9	26·9	25·9	25·0	24	23·0	22·1	21·2	20·2	19·9
5,000	30·0	29·0	28·0	27·0	26·0	25	24·0	23·0	22·0	21·0	20·0
5,200	31·2	30·2	29·1	28·1	27·1	26	25·0	24·0	22·9	21·9	20·8
5,400	32·4	31·3	30·3	29·2	28·1	27	26·0	24·9	23·8	22·7	21·6
5,600	33·6	32·5	31·4	30·3	29·2	28	26·9	25·8	24·7	23·6	22·4
5,800	34·8	33·6	32 5	31·3	30·2	29	27·9	26·7	25·6	24·4	23·2
6,000	36·0	34·8	33·9	32·4	31·2	30	28·8	27·6	26·4	25 2	24·0
6,200	37·2	36·0	34·8	33 5	32·3	31	29·8	28·6	27·3	26·1	24·8
6,400	38·4	37·2	35·9	34·6	33·3	32	30·3	29·5	28·2	26·9	25·6
6,600	39·6	38·3	37·0	35·7	34·4	33	31·7	30·4	29·1	27·8	26·4
6,800	40·8	39·5	38·1	36·8	35·4	34	32·7	31·3	30·0	28·6	27·2
7,000	42·0	40·6	39·2	37·8	36·4	35	33·6	32·2	30·8	29·4	28·0

Of the whole estimate, $\frac{11}{12}$ should consist of cereal and pulse; and a half of the balance ($\frac{1}{12}$) of fat.[2]

[1] This formula errs on the side of liberality, 6,000 grains of carbon being taken as required for an average day's work, while Letheby's estimate for ordinary labour is under 5,700 grains.
[2] Any less quantity of fat must be replaced by twice its weight of cereal.

The amount of pulse in $\frac{11}{12}$ of the estimate should be sufficient to ensure the required amount of nitrogen being present. This will be the case when—

		Ounces.		Cereal.
a	$\frac{11}{12}$ of the estimate exceeds not	15	in the case of	rice.
	„ „ „ „	17½	„	jowarí.
	„ „ „ „	19	„	millets and nagli.
	„ „ „ „	22	„	bajri.
b	and 4½ ounces of pulse be given.			

If the cereal be wheat, 4½ ounces pulse will ensure the presence of sufficient nitrogen.

When $\frac{11}{12}$ of the estimate exceeds these quantities, they must be increased by the following percentages on the excess in case of :—

	Per cent.
Rice	80
Jowarí	50
Lesser millets	40
Bajri	30
Wheat	10

When no pulse at all is given, the whole estimate must be increased by their percentages.

The limit of the pulse has been taken at 4½ ounces of pulse. Many successful Indian dietaries contain 4 to 5 oz. pulse per diem, *e.g.*, the labour dietary of the jails of the Bombay Presidency for many years included 5 oz. pulse per diem, and that of the jails of the Hyderabad Assigned District up to 1877 contained 4·8 oz. pulse per diem, and the non-labour dietary 4·5 oz. pulse.[1]

For Men of 105 lbs. in weight.	According to fact. Foot Tons. Actual.	According to fact. Foot Tons. Percentage of ordinary labour.*	Ounces of Pulse Cereal according to theory.†	According to the experience of the Bombay House of Correction. Foot Tons. Calculated.†	According to the experience of the Bombay House of Correction. Foot Tons. Percentage of ordinary labour.*	According to the experience of the Bombay House of Correction. Ounces of Pulse Cereal actual.
Bare subsistence	.....	...	16·8	54	23·8	18·79
Civil Agency task	76½	36·6	19·88	105	50·0	20·76
Public Works „	115	54·75	21·4	180	85·7	23·76

* Ordinary labour is 2 foot tons per lb. of body weight = 105 lbs. × 2 foot tons = 210 foot tons.
† Calculated by the formula
$W \times 0\cdot16 + FT \times 0\cdot04 = Q.$

By calculation we find that 2 foot-tons per lb. of body weight (ordinary labour) is equal to walking on level ground unloaded 16·97 miles.

Men unloaded, average weight 105 lbs., eating :—

Ounces of pulse-cereal.		miles.	
24	will walk	14·5	on level ground.
21	„	8·5	„
20	„	6·4	„
18·8	„	4·0	„

The prisoners in the Bombay House of Correction get more victuals than the theory shows they require.

[1] Dr. Cornish, in his letter of the 13th February 1877, para. 7, puts the limit for pulse at 2 oz.

[2] These factors result from the following considerations:—When the carbon in a dietary is as liberal as that provided for by the formula $W \times \cdot16 + FT \times \cdot04 = Q.$, the quantity of nitrogen present will suffice if it equal $\frac{1}{20}$ of the carbon. This quantity of nitrogen must be supplied, and is not replaceable; hence, if it fall short, food materials containing nitrogen must be added to the dietary until the required amount of nitrogen is made up, notwithstanding that in doing so we supply more carbon than is required. Since the ratio of $\frac{\text{nitrogen}}{\text{carbon}}$ is in pulses greater than $\frac{1}{20}$, and in cereals (except *wheat*) less than $\frac{1}{20}$, it follows that a mixture of pulse and cereal can be made which shall contain the required proportion of 1 of nitrogen to 20 of carbon.

From considerations of digestibility, we have to limit the amount of pulse given daily: hence our power of s combining the pulses and cereals that the mixture shall contain the required proportion of nitrogen to carbon stops when this amount of pulse has been reached. As the cereals vary in the proportion of their nitrogen to carbon, this stoppage occurs at a lower point with the less nitrogenous cereals, and at a higher with those more nitrogenous.

Rice contains least nitrogen in proportion to its carbon, then follow jowari, the millets, nagli, bajri, and lastly wheat which contains most nitrogen in proportion to its carbon. Hence the stoppage occurs soonest in the case of rice.

We have to make up the nitrogen required by adding cereal; for the same amount of nitrogen we must give more

of rice than of jowari.
„ jowari „ nagli.
„ nagli „ bajri.
„ bajri „ wheat.

The three factors which affect the sufficiency of a famine wage are—

(1) the normal average weight of the famine-stricken population;
(2) the amount of work to be exacted from relief recipients;
(3) the price of grain.

The amount of food required by a body of individuals of high average weight under certain conditions, as regards work, &c., is greater than that required by a body of individuals of lower average weight under similar conditions. Since the inhabitants of Indian provinces differ greatly in average weight, no single famine wage can be capable of universal application in India; a famine wage which will suffice in Bombay will not suffice in Sind and in the Panjab. Hence, in framing a famine wage, the normal average weight of the famine-stricken population must be considered.

Within limit, the more men work, the more they eat.
Suppose three scales of relief for those :—

(*a*) not working;
(*b*) doing light work;
(*c*) doing hard work.

Suppose the majority of the able-bodied population are on scale No. 3; then scale No. 2 becomes a provision for the infirm, from whom work is not exacted. Suppose that in a second district scale No. 1 and scale No. are in force; that the able-bodied population are on scale No. 2; and that the task is enforced.

A condition of this kind may arise.

In both districts, the price of grain may have risen to such an extent that the wage of scale No. 2 may fail to provide sufficient food for those from whom the task of scale No. 2 is exacted. But in the first district, as scale No. 2 is a provision for the infirm, doing nominal work, this insufficiency is little felt.

This difference will be marked—

a. if the price of grain be higher in the second district than in the first;
b. if the grain available in the second district be less nutritious than that in the first;

The following table shows how unequal in purchasing power are wages not founded on the price of grain.

The four scales of wage employed during the famine of 1877 are taken for illustration:—

LBS. OF GRAIN PER RUPEE.	MARGIN IN PIES PER WEEK.			
	PULSE-CEREAL GRAIN PROVIDED PER DIEM.			
	24 ounces.		20 ounces.	
	A.	B.	C.	D.[1]
	Value of 1lb. of grain *plus* 1 anna for		Value of 1lb. of grain *plus* ½ anna for	
	Six days per week.	Seven days per week.	Six days per week.	Seven days per week.
20	28·8	51·4	9·6	25·2
19	26·5	48·6	8·2	24·3
18	24·0	46·6	6·6	23·3
17	21·2	44·4	5·0	22·2
16	18·0	42·0	3·0	21·0
15	14·4	39·2	·8	19·6
14	10·3	36·0	—	18·0
13	5·5	32·7	— ·3	16·1
12	...	28·0	— ·7	14·0
	—	22·9	—1·1	11·4
11	— ·9	16·8	—1·6	8·4
10	—1·7	9·3	—2·0	4·⅛
9	—2·6	2·5	—2·4	...
8	—3·4	—	—2·9	—
7	—4·3	—1·0	—3·3	— ·5
6	—5·1	—2·0	—3·7	—1·0

This table shows—supposing individuals under conditions as to work to require respectively 24oz. and 20oz. pulse-cereal per diem, and that the wage paid is the value of 1lb. grain *plus* a fixed money payment—that the purchasing power of such a wage must decrease as the grain price rises; whereas if the daily wage given be the value of, respectively, 1½lbs. of grain and 1¼lbs. grain *plus* a smaller fixed money payment, its food-providing power remains uniform, whatever the grain price be.

The fluctuating portion of the wage should be the value of the quantity of food required by adults of the average weight of the relief recipients when performing the work exacted for the wage. The least number of ounces of pulse-cereal required may be obtained

[1] "The Temple Wage"—
3 pie = 1 paisa.
4 paisa = 12 pie = 1 anna = $\frac{1}{16}$ rupee.

from the formula $W \times 0{\cdot}16 + FT \times {\cdot}4 = Q$, and the quantities so obtained will only prove sufficient when certain conditions as to the composition of the pulse-cereal are complied with. Hence it may become necessary—

to take steps to comply with the required conditions; or to allow an additional quantity as compensation for non-compliance.

Take the case of men averaging in weight 105 lbs., and performing a work equal to 77 foot-tons (the Bombay Civil Agency task). By the formula we find—

$$Q = 105 \times 0{\cdot}16 + 77 + 0{\cdot}04 = 19{\cdot}88 \text{ oz.(say 20 oz.)}.$$

Example—

1. Suppose no pulse to be given—

(a) The fat $= \frac{\frac{1}{12} \times 20 \text{ oz.}}{2} = \frac{5}{6}$ ounces.

If less fat than this be given, the quantity of cereal required to compensate for the deficiency $= 2 \times$ weight of fat deficient.

(b) The cereal and pulse (in this case *nil*) $= \frac{11}{12} \times 20$ ounces $= 18\frac{1}{3}$ ounces.

Then the quantity of the cereal—

Rice	$= (18\frac{1}{3} + 18\frac{1}{3} \times 0{\cdot}8)$ ounces	$= 33$	ounces.
Jawari	$= (18\frac{1}{3} + 18\frac{1}{3} \times 0{\cdot}5)$ „	$= 27{\cdot}4$	„
Lesser millets	$= (18\frac{1}{3} + 18\frac{1}{3} \times 0{\cdot}4)$ „	$= 25{\cdot}6$	„
Bajri	$= (18\frac{1}{3} + 18\frac{1}{2} \times 0{\cdot}3)$ „	$= 23{\cdot}8$	„
Wheat	$= (18\frac{1}{3} + 18\frac{1}{3} \times 0{\cdot}1)$ „	$= 20{\cdot}1$	„

The ration will be—

$\frac{5}{6}$ oz. fat + pulse *nil* + 33 oz. *rice.*
Similarly for the rest.

2. Suppose $4\frac{1}{2}$ oz. of pulse (the quantity required) to be given—

(a) The fat will be $\frac{5}{6}$ ounces as before.
(b) The cereal and pulse (in this case $4\frac{1}{2}$ ounces) $= \frac{11}{12} \times 20 = 18\frac{1}{3}$ ounces.

Then the quantity of the cereal—

Rice	$= (13\frac{5}{6}$ [1] $+ \overline{18\frac{1}{3} - 15} \times 0{\cdot}8) = 16\frac{1}{2}$	ounces.
Jawari	$= (13\frac{5}{6} + \overline{18\frac{5}{6} - 17} \times 0{\cdot}5) = 14\frac{1}{4}$	„
Lesser millets	$= (13\frac{5}{6} +$ nil [2] $) = 13\frac{5}{6}$	„
Bajri	$= (13\frac{5}{6} +$ nil $) = 13\frac{5}{6}$	„
Wheat	$= (13\frac{5}{6} +$ nil $) = 13\frac{5}{6}$	„

The ration will be—

$\frac{5}{6}$ oz. of fat + $4\frac{1}{2}$ oz. pulse + $16\frac{1}{2}$ oz. rice.
Similarly for the rest.

3. Suppose 4 ounces of pulse or less than that ($4\frac{1}{2}$ ounces) required is given—

(a) The fat will be $\frac{5}{6}$ ounces as before.
(b) The cereal and pulse (in this case 4 ounces) $= 18\frac{1}{3}$ ounces.

Then the quantity of the cereal—

Rice	$= (14\frac{1}{3}$ [3] $+ \overline{18\frac{1}{3} - 13\frac{1}{3}}$ [4] $\times 0{\cdot}8) = 18\frac{1}{3}$	ounces.
Jawari	$= (14\frac{1}{3} + \overline{18\frac{1}{3} - 15\frac{1}{9}} \times 0{\cdot}5) = 15\frac{9}{12}$	„
Lesser millets	$= (14\frac{1}{3} + 18\frac{1}{3} - 17 - 0{\cdot}4) = 15\frac{1}{3}$	„
Bajri	$= (14\frac{1}{3} +$ nil [5] $) = 14\frac{1}{3}$	,
Wheat	$= (14\frac{1}{3} +$ nil $) = 14\frac{1}{3}$	„

The ration will be—

$\frac{5}{6}$ oz. fat + 4 oz. pulse + $18\frac{1}{3}$ oz. rice.
Similarly for the rest.

These results go towards reconciling what would appear to be contradictory experiences of the sufficiency of the same famine wage. Example: Let there be two famine-affected districts, A and B, in which are gangs of men averaging 105 lbs. in weight, employed on a task equal to the Bombay Civil Agency task. In district A let pulse, wheat, bajri, and the lesser millets and nagli be available for purchase; in district B let pulse and rice only be available and let the amount of pulse purchased and consumed daily by the labourers of both districts be 4 oz. Then while the requirements of the famine labourers of district A may be represented by 20 oz. pulse-cereal, those of the famine labourers of district B must be represented by this quantity of pulse-cereal, plus an additional quantity of 4 oz. rice, equal to a total of 24 oz. Take two scales of wage, the C and D scale. When grain is at 16 lbs. per rupee, the C scale supplies 20 oz. daily; with grain at the same price, the D scale can supply no more than 24 oz. daily, hence the D scale in district B. and the C scale in district A are equivalent to one another, notwithstanding the fact

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[1] $(18\frac{1}{3}$ oz. $- 4\frac{1}{2}$ oz.$) = 13\frac{5}{6}$ ounces.
[2] $(18\frac{1}{3} - 19) = -\frac{2}{3}$ or compensation is not needed.
[3] $(18\frac{1}{3} - 4) = 14\frac{1}{3}$ ounces.
[4] The limit of rice is 15 ounces when $4\frac{1}{2}$ ounces of pulse are given; if less pulse be given, the limit will change.
In this case the limit of rice $= 15$ ounces $\times \frac{4 \text{ oz.}}{4\frac{1}{2} \text{ oz.}} = 15 \times \frac{8}{9} = 13\frac{1}{3}$ ounces.
And similarly for the rest.
[5] The limit of Bajri $= 22 \times \frac{8}{9} = 19\frac{1}{2}$.
Then $(18\frac{1}{3} - 19\frac{1}{2}) = -1\frac{1}{6}$ or *no* compensation is required.

that the D scale is the greater by a seventh day's wage. This is the case supposing that the labourers of both districts purchase 4 oz. pulse per diem; but if the labourers of district A purchase and consume this quantity of pulse, and those of district B a less quantity, then the D scale in district B becomes of less sustaining power than the C scale in district A. Suppose grain to be at the same price in the two districts. The labourers of district B doing the Bombay Civil Agency task, on the A or B scale of wage, will be no better off than those in district A doing the Bombay *Public Works* task, paid at the same wage.

Since the quantity to be added (as compensation for defective composition) to estimates by the formula $W \times \cdot 16 + FT \times \cdot 4 = Q$, may amount to 14⅗ oz. for every 20 oz., or to an increase of 73 per cent. on the original estimate, it is evident that in many cases it will have to be decided on economical considerations whether the composition required should not be secured instead of increasing the estimates by so large a percentage. In lieu of a fraction of the wage, a ration of pulse might be issued. This is where the only cereal available is rice, and where $W \times \cdot 16 + FT \times \cdot 04 = 20$, would reduce (if 4 oz. pulse were issued) our percentage of increase required from 73 to 20 per cent., and in many cases would do away with the necessity of making any increase.

Unless the ration be issued in the form of cooked pulse, it may be bartered away, &c. The provision of appliances for grinding should be considered, as where available the nutritious cereals can be used, while where not available the less nutritious cereals only.

With regard to compensation for defective composition, having determined the least quantity of pulse-cereal required by men of average weight performing the greatest task, we have:—

1. What margin of safety shall we allow?
2. What fixed money payment shall we add to the fluctuating portion of the wage as a margin for contingencies?

As to the margin of safety—

(*a*) The less liberal the compensation allowed for defective composition, the greater should be the margin.
(*b*) The smaller the amount of the fixed money payment added to the fluctuating portion of the wage, the greater should be the margin.
(*c*) When relief recipients are allowed an option between three or more scales, the margin should be greater in the highest and lowest of a set of scales than in the intermediate scales.
(*d*) Probably a margin of 10 per cent. over what theory requires is ample.

As to the amount of fixed money payment which should be added to the fluctuating portion of the wage as a margin for contingencies, Dr. Lyon assumed, in his evidence before the Commission, that 3 pies per diem fairly represent what is required. His opinion is only founded on the statements of others.

Suppose:—

(*a*) That the normal average weight of relief recipients is 105 lbs,
(*b*) That the food materials in the famine-affected districts are pulse and the nutritious cereals,
(*c*) That the task exceeds not in dynamic value 115 foot tons (the Bombay Public Works famine task),

then a wage of the value of 1¼lbs. of *pulse-cereal* plus 3 pies per diem is (excluding the 3 pies,) in *excess* of what theory requires for the performance of a task equal to 115 foot-tons by about 12 per cent.[1]

A wage of the value of 1¼lbs. of *pulse-cereal* plus 3 pies per diem allows no margin when a task of 77 foot-tons is exacted, except the fixed money payment of three pies. While it might suffice in cases where the task is not exacted, or where it forms an intermediate scale, it is too close to theory to serve as the highest wage of a set. If raised to the value of 1⅜lbs plus 3 pies per diem, it would afford a ten per cent. margin of safety in addition to the 3 pies.

An allowance of 18·8 oz. daily for bare subsistence is nearly 12 per cent. in excess of what theory requires.

The various systems which have been adopted are—

(*a*) Task work.
(*b*) Piece work.
(*c*) A system in which, wage fixed, the work varies with the capacity of the individual.

When the wage and task are fixed relatively to each other so as to provide a reasonable margin of safety, task-work meets every requirement except in one particular case. It fails when applied to persons of whom some exceed the rest in average weight. For a gang averaging 105 lbs. in weight, performing a task equal to 115 foot-tons, an allowance of 24 oz. pulse-cereal is 12 per cent. over what theory requires.[2] Suppose that the heavy men weigh 130 lbs., then the *least* requirements of these men is $130 \times \cdot 16 + 115 \times \cdot 04 = 25 \cdot 2$ oz. There are two ways of meeting the difficulty:—to form the heavy men into a gang on a larger wage with a larger task; or to adopt piece work instead of task work. Piece work is open to objection, and therefore the first mentioned of the two courses is preferable.

With the task work system, it is possible to provide a margin of safety for men reduced by famine without favouring the strong. With the piece work system, if we provide a margin of safety for the reduced men, we favour the strong. Suppose men weigh 105 lbs., and the work exacted is 115 foot-tons: with a wage which will supply 24 oz. pulse-cereal, there is a margin of safety for reduced men of 2·6 oz.; for $105 \times \cdot 16 + 115 \times \cdot 04 = 21 \cdot 4$ oz.[2] But the

[1] See page 147.

[2] 21·4 oz. : 100 oz. = 2·6 oz. : x oz.

$$\therefore x = \frac{2 \cdot 6 \times 100}{21 \cdot 4} = 12 \cdot 1 \text{ per cent.}$$

ordinary labour of men averaging in weight 105 lbs. is at 2 foot-tons per lb. of body weight, 210 foot-tons, and for this labour they require $105 \times \cdot16 + 210 \times \cdot04 = 25\cdot2$ oz. The work they will perform will be to the task of 115 foot-tons as 115 to 210, or as 23 to 42. If we adopt piece work and, in order to provide a margin of safety for reduced men, fix our piece at 115 foot-tons, and payment at the equivalent of 24 oz. of pulse-cereal, the reduced men have a margin of safety 2·6 oz. But the unreduced men are able to earn a wage equal to 42 oz. Hence, allowing the reduced men a margin of safety of 12 per cent. involves allowing the unreduced 60 per cent.

The task work system meets all requirements in famine times, provided—

(a) that the wage and task are so adjusted as to leave a margin of safety for reduced men, while the wage is sufficient for ordinary labour.

(b) that differences in weight of individuals are met by a system of separate gangs on a wage and task adjusted to the weight of the gang.

The piece work system is unsuited to famine times, because—

(a) Some of the men are reduced below the normal, and some not.

(b) The work of the relief recipients does not return the value of the money expended.

If the unit of work be below the capacity of a man in his normal condition, men in a normal condition earn more than they require at a loss to the State.

If the unit of work be at the full capacity of a man in his normal condition, men in a reduced state have no margin of safety.

The third system, where, the wage being fixed, the work exacted is a percentage of the individual's capacity, ought never to be adopted. For, given a minimum wage for men of certain weight, those above that weight, instead of being able to do more work, will not be able to do as much as men of the weight for which the wage was fixed. The food that men averaging 100 lbs. in weight require for ordinary labour, is only a bare subsistence allowance for men averaging 150 lbs. in weight. If (on an allowance of food sufficient for men weighing 100 lbs. at ordinary labour) we exact the same amount of work from healthy adults weighing 150 lbs. as we do from a similar adult weighing 100 lbs., the heavy man must suffer, inasmuch as he is only getting a bare subsistence ration. If, further, we exact more work from the big man than from the small one, the big man must suffer still more. It would be well to caution officers especially upon this point, saying that with a fixed wage, instead of expecting from heavy men more work than the average, they ought to expect less.

The tendency of a non-medical man dealing with labourers, some of large physique and some of small, would be to insist on the former doing more work than the latter, whereas he ought to exact less.

At what point does it cease to be remunerative to increase our outlay on famine relief for the purpose of obtaining work in return for the increased outlay?

The relation between a dietary for bare subsistence and one for ordinary labour is by theory as 2 to 3. That is, for ordinary labour we need never give more than half as much again as for bare subsistence, and in famine times, where the tendency is to exact less than a full return of labour for the amount of food supplied, we may suppose that our labour scale never exceeds our bare subsistence scale in a greater portion than this. Hence (disregarding the question of cost of supervision) whenever the return of work is of greater value than 33 per cent. of the wages, it is more profitable to employ the recipients of relief on work than to supply them with food and exact no work; if it fall below 20 per cent. of the wages, it is not profitable.

A bare subsistence dietary contains the margin of safety in the shape of an increased quantity of food, while in famine times (with a task system) a labour dietary contains its margin of safety in diminished work, and thus the bare subsistence and the labour scale are brought closer together.

Take the case of men averaging 105 lbs. in weight, with bare subsistence, and a task equal to 115 foot-tons. The bare subsistence estimate is 18·8 oz., or 12 per cent. above theory. The labour estimate is 24 oz., or 12 per cent. above theory. Now, the proportion between these two estimates of 18·8 oz. and 24 oz. is as 78·3 to 100; hence (disregarding the cost of supervision) when the return in value of work exceeds 21·7 per cent. of the wages, it is more profitable to employ the relief recipients than to supply them with food and exact no work.[1]

Where the work exacted is ⅔ of that stated above, as in Civil Agency works, it is probable (disregarding the cost of supervision) that, with a return of work somewhat under 21·7 per cent. of the outlay on wages, it would be more economical to employ the recipients of relief than to supply them with food and exact no work.

The percentage of the cost of supervision on the wages of the employed must be added to or deducted from the figures given.

Suppose the cost of supervision, &c., for a number of *employed* persons is greater than that for the same number when *unemployed* by 10 per cent. of the wages of the *employed*, the limiting numbers 33 and 20 become 43 and 30 per cent.

When the wage is on the principle that the whole quantity of food required can be supplied by the fluctuating portion of the wage, the fixed money-payment should be reckoned with the cost of supervision.

[1] See page 147.

The food requirements of the body can be ascertained by the formula $W \times \cdot 16 + FT \times \cdot 04 = Q$, where $W =$ body weight in lbs., $FT =$ foot-tons of work effected, and $Q =$ ounces of a mixture of pulse-cereal and fat, which complies with certain definite conditions.

2. The proportion of pulse to cereal can be complied with when the cereals are—

(1) Wheat.
(2) A mixture of wheat and the other cereals.
(3) Bajri alone, up to a limit of 24 oz.
(4) Lesser millets, nagli and jowari, up to a limit of 20 oz.
(5) Rice alone, to a limit of 16½ oz.

When the condition as to the proportion of pulse to cereal cannot be complied with, the *estimates* arrived at by the above formula must be *increased* by a percentage varying according to the amount of pulse and the nature of cereal employed. This percentage of increase may be 73 per cent., in the extreme case where, no pulse being given, *rice is the only cereal* employed.

REPORTS

ON THE

WORKING OF THE RAILWAYS OF INDIA BY OFFICERS OF THE RAILWAY DEPARTMENT EMPLOYED ON OPERATIONS CONNECTED WITH THE FAMINE.

Captain Bisset, R.E., in his Report of the 24th January 1877, with respect to the Block in Grain Traffic between Northern India and the Famine Districts of the South, says :—

Khandwa, 19th January 1877.—200 tons of grain are waiting for despatch.

About 100 tons a week have been forwarded from Holkar Railway.

On the 1st January 1877 there were 13,000 tons of grain at the stations in this district, extending from Nagpor to Nandgaum, and 1,000 wagons standing loaded for the South-eastern district, Lanowli to Raichor and Madras Railway.

The accumulations at the stations increased to a maximum of 17,000 tons on the 13th.

Tons of grain accumulated on the 19th January 1877.

Nagpor	8,500
Small stations to Khamgaum ...	2,000
Mortizapor	1,500
Badnera	700
Akola	1,700
Nandora and Shegaum ...	800
Bhosawal to Nandgaum ...	300
Total tons ...	15,500

Open preference is given to cotton and linseed, over grain and other seeds.

The allotment of wagons during a recent period of six days was—

	525 for cotton.
	136 for linseed.
	153 for grain.
Total	814 for wagons from Nagpor district.

During the same period 714 empties were given to the Jabalpur side, and returned chiefly loaded with grain. The estimated daily maximum capacity of the line here is 18 goods trains, or 450 goods wagons.

This may be increased if the Thull Ghât can pass more,

20th January.—The greatest day's work,—Egutpura, Thull Ghât,—was 451 loaded wagons worked towards Bombay on the 20th December 1876.

The highest average was on 4th to 9th December, when 336 were daily worked towards Bombay.

The average of nine days, 8th to 16th January, was 263 loaded wagons towards Bombay and 362 wagons (including empties) from Bombay.

The estimated capacity is, however, over 500 wagons, and the present working cannot be taken as a fair average, as the numerous special trains running have taken train room and upset the regularity of the goods trains.

The working maximum of the Thull Ghât is not likely to exceed 450 wagons a day; if this be done, the Ghât will be equal to the same work as the line above it.

22nd January.—With the cotton season coming on, a large portion of the 450 wagons will be for Bombay itself, and, as the powers of the Bhore Ghât are about equal to those of the Thull Ghât, there is no difficulty to be feared on the former, even allowing for grain traffic and ordinary traffic from Bombay itself.

Between Lanowli and Puna, single line above the Bhore Ghât, there were difficulties felt early in December, and crossing-stations were at once put in at two points.

When the Sholapur demand increased, the long-distance stations between Puna and Sholapur were divided by crossing-stations, four of which have been already opened.

Between Sholapur and Shahabad a crossing-station has been put in, to divide Gulburga and Shahabad. Between Sholapur and Gulburga, and between Shahabad and Raichor, are some long runs; but the powers of the worst part of the line are equal to seven goods trains a day, or in excess of the working of the Madras Railway.

The promises made by Mr. Conder and the Agent, Great Indian Peninsula Railway, and by the Government officers, that from 150 to 200 wagons a day shall be delivered at Raichor, is practicable without more crossing-stations, and the further addition to the carrying-powers of this section of the line is considered practicable if the powers of the Madras line are increased so as to make this necessary.

The powers of the railways have now been traced from the sources of supply to Raichor; and the powers of the Madras Railway, Raichor to Gooty or to Bellary, have to be considered. The line should be able, notwithstanding two or three long runs, to pass about nine trains a day.

But the long runs of 18, 12 and 14 miles which follow each other from Kosgi to Adoni, Adoni to Auspri, and Auspri to Nemcherla, should be divided by crossing-stations.

Whether the long run of 18 miles between Gundacul and Vurapur on the Bellary branch should be divided or not, depends upon the number of trains required for Bellary.

With two passenger trains and with engines of the same power as those now here, these nine trains would not carry the 200 wagons which the Bombay Railway can undertake to deliver.

The first difficulty is the want of engines.

"Bombay Government consent to additional sidings here; 12 engines, promised by Director, State Railways, will increase work, and early execution by District Engineer requested."

Mr. Conder and others say:—

1.—That the engine-power should be at once increased.

2.—That the line should be worked night and day.

3.—That there should be night staff for transferring goods.

If it is possible to give more engines from the other parts of the line, their services on this short run would result in the delivery of three tons of grain at Bellary for one which they could bring from Madras to the same market.

The night staff was put on from the 22nd January 1877.

1. The want of proper marshalling of the trains brought in from the Bombay line gives a great deal of trouble at Raichor.

2. The use of the great Indian Peninsula Railway cotton wagons for through traffic involves transhipment of a good many wagons at Raichor.

3. Earlier notice of trains ordered for Raichor was asked for.

This is a grave calamity. It not only harasses traders, but adds to the cost of transport, and to the time occupied in transport.

I have deferred my remarks on this subject till now, because it is at Raichor that its evil effects are most prominent. The yard is filled with grain, which has been brought to Raichor and stopped there because of the interruption to through-booking.

The grain blocks the yard, occupies valuable space, and demands infinitely more work and attention than if it was booked through in suitable wagons.

Some of the grain certainly belongs to Raichor merchants, but much wanted to go on to Adoni, and all of it now wants to go on, as the prices here have fallen to 10 seers and 10½ seers per rupee.

As there is no obstacle now to a limited amount of through-booking, I despatched the following telegram to both the General Traffic Manager, Great Indian Peninsula Railway, and the Consulting Engineer for Railways, Bombay:—

"Raichor crowded with grain, booked locally from your side, but intended to go on. This is a serious evil. Stop this and re-open through-booking as far as Gooty and Bellary, distributing the 90 wagons which Madras can probably take daily in such a way as to keep private trade moving, at the same time avoiding rushes."

I have sent a letter in continuation, inviting attention to the Nagpur district, and although I do not think it is possible to clear any district without neglecting another equally important one, I trust that the equitable distribution of the wagons according to the register of consignments, and the re-opening of through-booking on the limited scale now possible, will restore confidence to the private traders.

After visiting Madras, I shall be able to report how soon the limit of 90 wagons can be enlarged, and I trust that the powers of the Madras line may soon be equal to a larger number.

The actual despatches of wagons from Raichor station during the 19 days just ended have amounted in all to 1,367 wagons, or an average of 72 per day. Much remains to be done before the offer of the Great Indian Peninsula Railway can be worked up to, but there are hopes that by marshalling of trains, and more care in selecting wagons for through traffic, the present engine stock will be able to carry more than the 90 wagons referred to in my telegram.

I found everywhere, from Puna onwards, that carriage was wanted for grain to the Madras line.

The Consulting Engineer for Railways, Madras, in his memorandum No. 68, of 30th January 1877, to the Government of Madras, stated:—

2. The accumulated through-booked traffic on the Great Indian Peninsula Railway was worked off some days ago.

3. The Great Indian Peninsula officials seem to anticipate a recurrence of the block, unless the Madras Railway is able to carry forward from 150 to 200 wagons per diem.

4. At present the Madras Railway can carry forward 100 wagons daily from Raichor, and the Great Indian Peninsula Company has been asked to restrict their consignments to that figure.

5. The officials of that Company state that to restrict their through consignments is impossible, and that through-booking must either be allowed in full or not at all. They press that a depôt should be established at Raichor, at which the Great Indian Peninsula wagons could be unloaded and the grains stored until the Madras Company are in a position to forward it.

6. The adoption of this measure would be a great misfortune, and should be averted.

7. The Madras Company is most anxious to carry forward every wagon which comes from the north, and deficient engine-power is the only cause which will interfere with their doing so.

8. At present the 100 wagons which they are able to take daily are more than sufficient, as the Traffic Manager states that for want of loads they do not run regularly all the trains booked to leave Raichor.

9. A night staff has been entertained at Raichor and where needed. The Raichor station is understood to have been worked by day and night since the 21st January 1877.

10. The reduction of passenger-train mileage on other parts of their line, with a view to increase the number of engines available at Raichor, has been suggested.

11. The 12 locomotive engines promised by the Director of State Railways, now under erection at Bombay, will enable the Madras Railway Company to work all portions of their line freely.

13. The provision of temporary shelter for grain at Adoni and elsewhere will at once be proceeded with; but information regarding the quantity for which shelter is to be provided at each place is necessary.

14. I have authorised the immediate construction of an additional siding in the Raichor station yard.

15. I have authorised the immediate construction of a through-siding at the Tungabudra station, and similar accommodation at a convenient site between Kosgi and Adoni.

The Consulting Engineer for Railways, Bombay, in his Report of the 31st January 1877, says:—

The Great Indian Peninsula Railway Company recommenced booking grain through to stations on the Madras line on the 23rd January; orders have been given not to send more than 90 through wagons into Raichor daily for the present, and to keep back loaded wagons in excess of this number; but the Great Indian Peninsula Railway Company are prepared to increase the number to 150 wagons a day or more; and while they will do all in their power to regulate the despatch of wagons, they represent that they cannot control the daily consignments of grain for the Madras line, and should these consignments, which are being poured in from the East Indian Railway, as well as their own stations, be greatly in excess of 90 wagon-loads per day, or whatever the Madras Company can forward from Raichor, and should wagons consequently again accumulate on the Bombay side of Raichor to such an extent as again to necessitate a suspension of through-booking, the responsibility will rest with the Madras Railway Company.

The booking of grain from Great Indian Peninsula Railway stations to Raichor has been discouraged, and for some days during the late block consignees of grain to Raichor were asked to delay booking; but the Company cannot avoid booking consignments to Raichor altogether, and if grain should be consigned again in large quantities to Raichor, consignees should be required to remove it as it arrives, and if necessary the wharfage charge should be raised in order to induce its speedy removal.

The suspension of through booking from the 8th to the 23rd January doubtless encouraged local booking, but was not the sole cause. Some merchants selected Raichor as a convenient station in the centre of the districts affected by the famine.

The Great Indian Peninsula Railway will deliver wagons up to, and if possible not more than, what the Madras Railway Company can remove ; will book through as far as possible in wagons suitable for the Madras Railway.

The marshalling of trains is being done. It was agreed to on the 16th January, from the date of resumption of through booking. The Great Indian Peninsula Railway Company represent that it is not a duty that should devolve on them.

Lieutenant D. A. Scott, R.E., Officiating Deputy Consulting Engineer to the Government of India for Guaranteed Railways, in his note of the 13th February 1877, on the accumulation of grain at stations on the East Indian Railway, says:—

On the 25th January 1877, I found the platforms of most of the stations between Burdwan and Sahibganj covered with bags of rice waiting to be carried to Howrah.

At each of these stations is kept a register of the dates of the receipt and despatch of consignments, which are despatched in accordance with their place on the register.

2. The following statement gives the quantity of grain waiting despatch :—

Names of Stations on the Loop Line, East Indian Railway.	Maunds of grain for despatch.		Maunds despatched from 18th to 24th January 1877, inclusive.	Remarks.
	At Stations.	In Bazars.		
Gushkharah	8,000	19,000	4,159	
Bhulpur	15,000	90,000	10,588	
Amudpur	16,000	2,000	3,906	
Cynthea	20,000	30,000	8,038	
Mullarpur	11,000	1,000	(a) 4,747	(a) On the 25th January 1877.
Rampur Hât	7,000	19,000	6,776	
Nalhati	53,000	21,000	10,456	
Mooraroee	50,000	30,000	5,364	
Pakor	12,000	38,000	4,300	
Sahibganj	11,000	5,000	23,113	
Bhaugulpur	15,000	...	(b) 8,164	(b) On the 26th January 1877.
Kolgong	15,000	15,000	4,283	A very large quantity for export in the bazar; merchants despatching goods by boats.
Total Maunds ...	233,000	255,000	93,894	It would take five weeks to clear off this accumulation of grain.

3. From a letter from the Collector, Beerbhum district, it appears that no heavy export of rice can be expected after this rush, so that by the end of February 1877 it may be supposed that the Railway Company will have carried off the whole of this rice traffic.

The country has been invaded by foreign merchants from different parts of India, attracted by the unusually good harvest and the high prices obtainable in Calcutta.

4. The most noticeable accumulations of grain were at Bhulpur and Nalhati.

At Bhulpur, bags of rice were heaped up on both sides of the road leading to the station for a quarter of a mile. A fall of rain had done some damage (one per cent.) to the rice.

At Nalhati, where the State Railway joins the East Indian Railway, great discontent prevailed among the merchants, owing to the right of preference to through goods from the State Railway having been abolished. The out-door traffic inspector, loop line, stated that it was customary to give priority of despatch to through goods; but that, owing to several merchants of Nalhati having booked their consignments to Azimganj and then re-booked them through to Howrah, in order to reap the advantage of this preference, the Traffic Manager had put a stop to the arrangement. Through goods are now treated as local goods, and registered accordingly.

5. At Burdwan, the amount registered on the 25th January was 58,000 maunds, and consignments were still being brought in. The total amount of rice carried away from the 18th to 24th January 1877 was 11,000 maunds; but the register was only cleared off up to the 4th December 1876.

6. There were no noticeable accumulations of grain in the district of Nawadi to Moghul Sarai, but the station-masters stated that merchants were not sending their goods because there was so much delay in procuring wagons.

7. Between Moghul Sarai and Allahabad the stations were free from accumulations of grain. At Mirzapur, on the 29th January, there were 30 wagon-loads of seeds, sugar, &c., waiting despatch. The seeds were for Howrah and Bombay for export, and the rice was for Howrah. The station-master stated that in former years the rice traffic had come from Bengal, but that this year merchants were exporting it.

8. At Kahnpur, on the 30th January, there were 100,000 bags, or 250,000 maunds, of grain for the Great Indian Peninsula Railway alone, but only a small quantity for Howrah. The gates of the station yard had been closed since the 15th of January 1877, to be opened on the 31st, when 100,000 bags of wheat and seeds for Howrah were registered for admission. No more consignments were being sent to the Great Indian Peninsula line, on account of the block of loaded wagons at Jabalpur: the block being removed, through booking would be resumed.

From the 1st to the 29th January the total weight of grain sent to the Great Indian Peninsula Railway was 266,750 maunds, and to the main line 273,400 maunds; the average number of loaded wagons despatched per day was 89.

The Deputy Traffic Manager stated that at all stations in his district the strictest impartiality was observed in the despatch of consignments, and that preference was not even given to English firms, who brought some lakhs of rupees to the Company yearly.

The principal accumulations in the district, which extends from Kahnpur to Delhi, were at Etawah and Delhi.

At Etawah there were 6,000 maunds of grain, cotton, and ghi for Howrah, and outside the station 50 wagon-loads of wheat for Howrah, and other grains for the Great Indian Peninsula Railway.

At Delhi there were 180 wagon-loads of goods lying inside the station yard, 400 wagon-loads outside the station yard, in the sarai, and a very large quantity in the bazar. From this district the number of loaded wagons sent to Howrah and stations below Kahnpur during January 1877 was 2,222, and to the Great Indian Peninsula Railway 568.

9. On the Jabalpur line there were very large quantities of grain accumulated at the four stations next Jabalpur, namely, at Kutni, Slimanabad, Sehora Road, and Deori, as shown in the following table:—

Name of Station on the Jabalpur Line, East Indian Railway.	Maunds of goods at Station.	Nature of Goods.	Where for.	Maunds of goods in the Bazar.	Number of Wagons supplied in	
					December 1876.	January 1877.
Kutni	5,000	Rice, wheat, seed, mowha flower.	Great Indian Peninsula Railway.	110,000	194	135
Slimanabad	7,000	Grain, seeds, mowha flower.	„	8,000	53	45
Sehora Road	25,000	Rice, wheat, teelseed, linseed.	„	10,000	66	61
Deori	42,000	Wheat, seeds, rice, &c.	„	12,000	95	67

On the 4th February, at Jabalpur, there were 65,000 maunds of grain, &c., waiting despatch; goods registered in November 1876 were being sent off; there were 20,000 bags of grain for export in the bazar; and 227 loaded East Indian Railway wagons waiting to be taken away by the Great Indian Peninsula Railway.

10. The daily average number of wagons of the East Indian Railway during January 1877 was:—

On the Great Indian Peninsula Railway	727	
Sent to the „ „ „	93	
Returned loaded	7	81
„ unloaded	74	
Detained at Jabalpur	192	

Thus, during this great rush of down traffic, the East Indian Railway has lost the use of a large number of wagons, for which they get no return from the Great Indian Peninsula Railway.

11. The station-master at Jabalpur stated that the Great Indian Peninsula Railway had reduced their number of outwards trains from 10 to 6, on account of a deficiency of break-vans; had borrowed some from the East Indian Railway; had taken, in calculating their train loads, two of the East Indian Railway wagons as equivalent to three of their own; so that out of the usual East Indian Railway train-load of 30 wagons the Great Indian Peninsula Railway train-load was 20 waggons only.

The inability of the Great Indian Peninsula Railway to work the traffic brought to it has caused great loss and inconvenience to the East Indian Railway.

The wagon mileage rate on both lines is the same, yet the capacity of the—

$$\frac{\text{East Indian}}{\text{Great Indian Peninsula}} \text{ Railway wagon} = \frac{10 \text{ tons}}{6 \text{ tons.}}$$

16. On the 26th January the Traffic Manager at Jamalpur stated that there had been no undue detention of East Indian Railway wagons on the Great Indian Peninsula Railway. The average detention of each wagon is about 10 days.

The following figures show the present down traffic on the East Indian Railway:—

Nature of Grain.	Tons of goods carried during December 1876	
	Down to Howrah.	Up to G. I. P. Ry. (Jabalpur).
Rice	30,000	7,120
Wheat	16,000	7,370
Pulses	500	5,700
Other grains	13,000	1,470
Total ...	59,500	21,660

The traffic to the Madras line from the East Indian Railway is nominal. Out of a daily average of 800 tons of grain booked through on to the Great Indian Peninsula Railway during December 1876, not more than 30 tons went on to the Madras line.

Nature of Wagon.	Average number of miles run daily in November	
	1876.	1875.
Covered goods	1,15¼	96¾
Open-side	62½	41¾
Goods-brake	118¼	102½
Average for the whole ...	90¼	74

17. This heavy traffic on the East Indian Railway is conducted with regularity, and consignments are despatched with impartiality.

At each station a register of goods is kept, in which the dates of receipt and despatch of consignments are shown. This register is strictly adhered to. The goods rolling-stock is inadequate to meet this heavy rush of traffic. At all stations, except those on the Chord and some of the branch lines, there was not a station-master who did not say that he was in want of wagons.

The East Indian Railway has given the Great Indian Peninsula Railway more traffic than it can deal with, and also a large number of wagons, which it could ill afford to lose.

Captain W. S. S. Bisset, R.E., in his memoradum of the 14th February 1877, says:—

Captain Bisset submitted extracts from the books, at Raichor, showing that, although the Traffic Manager, Great Indian Peninsula Railway, had been good enough to order increased attention to the arrangement of trains sent into Raichor, there had been no change for the better up to the 7th February 1877.

Mr. Conder stated that he had recently renewed his orders—

(1) to place all Raichor wagons together;
(2) to put all wagons for transhipment at Raichor together;
(3) to deliver both these classes of wagon at Raichor by a separate train when this is possible.

2. Captain Bisset then submitted a fourth proposal, *viz.*:—

That the wagons for the Madras Railway should be arranged before delivery at Raichor in station order, so that the shunting at Raichor might be reduced, and the trains forwarded after changing engine, or after a few shunts.

Mr. Conder represented that this involved work which fell properly on the junction station at Raichor; that he doubted the necessity for the work; that he could not undertake to detain trains at roadside stations for such work, but that he would endeavour to obtain attention to the arrangement of wagons in station order as far as was possible without additional shunting.

He promised to consider the possibility of his doing the work thoroughly at one of the larger Great Indian Peninsula Railway stations on the condition that his Company were paid the cost of the shunting.

3. The Traffic Manager of the Madras Railway proposes to place one of his assistants at Raichor, and to await further experience before making any proposals involving payment to the Great Indian Peninsula Railway. But if, after experiencing the benefits of the improvements already agreed to, the Madras Railway Company find it impossible to pass the increased traffic through Raichor, it will be necessary for them to ask for further assistance, and for the agents of the railways to arrange the terms.

4. Captain Bisset submitted notes of the actual numbers of wagons with grain that had recently been received at Raichor requiring transhipment.

The numbers averaged only eight a day for the first seven days of February, and these numbers were considered as easily manageable. The difficulty of transhipping at Raichor arising from the constant disturbance of the transhipment by shunting, will now be much reduced.

NOTE.—The arrivals of these wagons on the 8th, 9th, and 10th February were afterwards found to be 4, 14, and 16 respectively.

Mr. Conder mentioned having recently repeated his orders to avoid loading cotton-wagons for stations beyond Raichor, and assured the meeting that the loading of such wagons would be practically stopped.

5. Captain Bisset represented that the Madras Railway should be trusted to work from Raichor up to its full powers with through wagons only, and that then there can be little or no room for grain re-booked at Raichor.

Mr. Conder stated that every effort was made to discourage the booking of grain to Raichor, and that it was explained to merchants offering grain for conveyance to Raichor, that the cessation of through booking was only temporary.

The grain booked to Raichor has been during the last few days unloaded in the new sidings, which are found very convenient.

6. Captain Bisset pointed out that, after the last suspension of through booking, there had been an interval of two days (27th and 28th January) during which the Madras Railway had not had full work.

Mr. Conder stated that he had never suspended the transmission of through-booked wagons from the East Indian Railway or other railways beyond his own line; that he had constantly in view a continuous supply of wagons to Raichor, and that no fears need be entertained of any short delivery at present; that he had resumed through booking for the Madras Railway on the 8th February; that the demands for carriage were not now so pressing; that the accumulations at the stations were now much reduced; that he saw no reason for supposing that the supply would not keep up to 150 wagons a day for some time yet.

7. Captain Bisset submitted a memorandum showing the increased work done by the Madras Railway at Raichor, and expressed an opinion that, with the additional engines soon to be placed at the service of the Madras Railway, their carrying powers would probably be fully equal to removing all the wagons delivered by the Great Indian Peninsula Railway.

Mr. Conder stated that he had not pressed more wagons into Raichor than the Madras Railway Company had asked for; that in loading the wagons at disposal, he had acted according to usual practice; that, on finding that there were no more wagons to spare and no sidings for more at the stations, he had suspended further booking to the Madras Railway; that delays or irregularities from very heavy despatches, followed by temporary suspensions of through booking, are not more objectionable to the dealers than any attempt to limit the despatches would be.

Captain Bisset mentioned the following reasons for maintaining a regular despatch:—

(1) Rolling stock would be economised.
(2) The train service would be more regular.
(3) Some approach to regularity would be attained in the interval between the consignment of goods and their delivery at their destination.
(4) Traders could make all their arrangements for supplies with more certainty and economy if regularity could be attained.

No conclusion was arrived at, except that with smaller amount of rolling-stock the present mode of working would hardly be practicable.

Colonel Hancock considered that the difficulties from detention of wagons and from any irregularity of the train service fell entirely on the Great Indian Peninsula Railway Company, and that it might be assumed that Mr. Conder would not incur these difficulties if he were not thoroughly convinced of the advantages of his present practice.

8. With reference to the responsibility for the accumulations caused by this mode of working, Captain Bisset represented that the Madras Railway Company was still very short of engines, and that it was impossible to consider that Company altogether responsible for the failure to keep in constant circulation all the wagons which might by an effort on the part of its more fully-stocked neighbour be poured down upon the junction station, and that the interests of both railways, and also of the grain traffic to the Madras districts, would be best served by mutual accommodation.

Both Colonel Hancock and Mr. Conder stated that no complaint was made, on their part, of the present working of the Madras Railway, but that they believed that a stimulus to more vigorous working had certainly been given by the knowledge that so many wagons were lying under load for the Madras Railway.

9. The meeting closed with assurances of the strongest desire on the part of the Bombay Railway Authorities to do all in their power to forward the further development of the grain traffic, and with regrets that somewhat different views as to the method of doing this had apparently been interpreted as obstacles to the attainment of this end.

10. The Traffic Manager of the Madras Railway has determined to place one of his assistants at Raichor during the present pressure of work there.

I now mention a slight loss of works on the 11th instant, which arose solely from the want of that prompt intercommunication which the presence of a superior officer of the traffic department at Raichor is likely to secure:—

On the 11th February 1877 a Madras Railway train, ordered in accordance with a definite expectation of larger arrivals of wagons from the Great Indian Peninsula Railway, had to be cancelled. This occurred within a few days after the local traffic officers had met at Raichor, and arranged in the most cordial manner for working into each others' hand.

Captain W. S. S. Bisset, R.E., in his memorandum of the 17th February 1877, on the arrangements for improving the delivery of grain from the north to the Madras Railway, says:—

Through booking from the Great Indian Peninsula Railway to the Madras Railway was suspended about the 15th January 1877; resumed on the 23rd January; suspended again on the 4th February; and resumed again on the 29th February. Mr. Conder informs me that, during the suspensions, goods booked to Madras Railway by the East Indian Railway or by other lines beyond the Great Indian Peninsula Railway's system were forwarded, and explains that the Native merchants fully understand these alterations. I cannot suppose that Mr. Conder would accept all the difficulties of detaining of wagons and shunting of trains at roadside stations without very strong convictions of the superiority of the mode of working which he adheres to; and although I believe that the traders of the ceded districts of Madras would deal more directly with the distant markets if they could reckon more confidently on any regular interval between the despatch and the arrival of their goods, it must be noted that any deficiency of enterprise in the distant markets is made up for by the activity of the trade from Puna, Sholapur, and the Nizam's dominions.

II.—Efforts are made on the Great Indian Peninsula Railway stations to discourage the booking of grain locally to Raichor as an alternative to through booking, the consignors being advised that any suspensions of through booking are temporary, and that the Madras Railway Company's trains from Raichor are occupied with through traffic. But Raichor station can, under present arrangements, receive local grain without inconvenience; and now that this reason can no longer be urged, the argument in favour of getting large quantities of grain as near as possible to the distressed districts cannot but be admitted; and moreover, grain has now begun to go from Raichor to Kurnool, and more might be expected to take this route if the road and its arrangements could be improved.

III.—The additional sidings were promptly put in at Raichor station, and have been found of the greatest assistance.

IV.—Crossing stations are being constructed, one near the Tungabhadra river (with reference to the water-supply), and another between Kosgi and Adoni.

Additional sidings and grain-sheds are ordered at Adoni, where there is a heavy traffic.

The crossing stations south of Adoni are not in progress, it being considered that the traffic south of Adoni can be passed without further assistance.

As soon as it is found possible to draw supplies from the north, the demand from the districts south of Gooty will increase much more than it has already done. But in the meantime I fear a temporary check will occur in the traffic, from the great fall in the prices of northern grain which has lately taken place, and if the estimates are not altogether wrong, this check will be followed by a more severe presure than has yet occurred.

Below the junction for Bellary, the number of trains may be practicable, but on the line between Raichor and Goondacal junction, I think no means of facilitating the passage of trains should be neglected.

V.—The Traffic Manager of the Great Indian Peninsula Railway has now made arrangements to give all the desired assistance to the traffic through Raichor.

The numbers of waggons handed over to the Madras Railway at Raichor are regulated by the demands made by the station-master of the junction station; the times of the Great Indian Peninsula Railway are arranged to suit the requirements of the Madras Railway Company; the wagons are arranged in station order, with the view of reducing the work at the Raichor station; and the wagons for Raichor itself, and for transhipment at Raichor, are being delivered together and by the trains arriving at the hours most convenient for prompt unloading and transhipment.

VI.—The arrangements for mutual accommodation at Raichor junction provide for keeping the Great Indian Peninsula Railway Company informed how many wagons the Madras Railway can take and promptly dispose of daily.

VII.—The number of wagons moved from Raichor southwards has not been maintained up to the average of the first six days of February.

Since the 6th February two engines have been transferred to Raichor, but the third, promised about the 16th, has not yet arrived. Of the two sent up, one failed on the 11th, and another of those formerly on this section has also failed, so that the power at Raichor is again no greater than before.

But, even with the temporary increase of power from the 6th to the 11th, the average number of wagons worked during the last 10 days is only 102, against 110 a day during the first week of February. It is said that both men and engines were worked at too high pressure during the former period.

The Locomotive Superintendent may find it possible to arrange for larger shed staff to undertake the necessary shed-work to the engines, and to relieve the drivers and firemen from this work, so that they may have all their time at home for rest, Many of the great Indian Peninsula Railway Company's engines are at present worked longer hours, but with reliefs of drivers and firemen, and I see no reason why, with increased running-shed establishment to look properly after the engines, this should not be possible on the Madras Railway.

At present a great many of the hours on the road are spent at stations, waiting for other trains or for crossing orders; regularity of the train service will increase the effective work of both men and engines.

VIII.—Reference has been made to the system under which the movements of the trains on the Madras Railway are regulated, as one of the main causes of this irregularity. The system works well with few trains, the irregularities of which are easily adjusted; but with the multiplication of trains, telegraphic references increase proportionally, and the telegraphic communication fails to prevent serious delays. In consequence of these delays, the train service gets disorganised.

This disorganisation throws an incessant strain on the directing officer. But its consequences are most severely felt by the train staff, whose working hours are extended to the full limit of endurance.

A charge (involving some delay and considerable expense) to the block system is now being made between Raichor and Adoni, but it will not be practicable to introduce this change over the whole line in time to be of use. A change to the system in force on the other Indian Railways might safely be introduced, length by length, with a few days of special attention by the telegraph and traffic officers to each length as the change is made.

I believe that with the present system an increase to the telegraph staff would afford considerable relief, and that, if the necessary signallers are not available in this Presidency, they could be obtained from other parts of India.

The importance of economising the time of the working staff cannot be over-estimated; for, besides considerations of public safety and of humanity to the staff, it has to be remembered that the supply of the trained staff is limited, and that upon the vigilance and endurance of the staff during the next four months the supply of food to the people depends.

IX.—Sufficient watering arrangements are of importance equal with an increase of engines and staff, and there is anxiety about the sufficiency of the supply in the length from Raichor to Cuddapah. Efforts are being made to supplement the supply, but it will probably be necessary to provide a supply of portable tanks to convey water for use on the long trips where no water can be got.

An addition has been made to the area of the station well at Kosgi.

It can hardly be hoped that all the enlargements of the wells will be equally successful; but, to meet the coming emergency, every source of water should be tried.

X.—It will be seen that, although there is a slight difference of opinion on the through-booking question, the General Traffic Manager of the Great Indian Peninsula Railway has done all that he has been asked to do, and in some respects more than he is legally bound to do, to facilitate the through traffic at Raichor.

The Madras Railway Company, with equally good intentions, has much greater difficulties to contend with. It is short of engines, and its traffic and locomotive staff is ordinarily kept very low.

It has never before had to deal with a traffic so large as the present, and it has for the first time to encounter the difficulty of adapting its arrangements to working a heavy traffic.

Thus it is not to be wondered at that from one cause or another there is not the same facility of expansion on the Madras Railway as on lines which have often to meet these emergencies.

But with regard to the through traffic from the Great Indian Peninsula Railway, although the mishaps recorded in paragraph 7 have prevented the Madras Railway from working up to the promises made to the Great Indian Peninsula Railway, the advance made has been considerable.

The average number of wagons worked from Raichor for the first 16 days of February has been 105 a day, while the daily average of the period from the 4th to the 22nd of January was only 72 wagons. The difference in weight of grain amounts to 200 tons a day, and this increase has been attained without any corresponding sacrifice of the despatches from Madras.

Statement showing the daily arrivals of Wagons at Raichor Junction, Madras Railway, and the daily despatches from the same station southward.

February 1877.	Number of Wagons.					Remarks.
	Through booked, delivered at Raichor in wagons which can run through.	Through booked, which have to be transhipped at Raichor.	Delivered at Raichor, to be unloaded there.	Through, detained at Raichor.	Through, (transhipped and local), forwarded from Raichor southward.	
1st	106	16	26	136	128	
2nd	73	3	10	131	110	
3rd	78	10	6	116	113	
4th	90	5	11	116	113	
5th	48	10	29	106	90	
6th	22	6	3	82	107	Two additional engines arrived.
7th	51	4	1	32	131	
8th	73	4	28	33	117	
9th	101	16	9	65	80	
10th	91	14	17	37	115	Two engines failed.
11th	119	10	16	68	79	
12th	95	8	17	53	95	
13th	106	8	8	74	119	
14th	106	2	7	79	95	
15th	91	8	15	83	114	
16th	84	12	2	75	73	
	1,334	136	297	...	1,679	

Captain W. S. S. Bisset, R.E., in his note of the 2nd March 1877, on the probabilities of landing Grain at Negapatam and delivering it at Erode Junction for conveyance to Bangalor, says:—

At Negapatam, cargo is unloaded at a quay on the banks of a river, at the entrance to which is a bar, two hours out of six impassable to heavy boats. The quay, where goods are landed, is within 400 yards of the railway-station. From the difficulties at the bar, and from the distance at which the ships lie, the boats which draw three feet of water with their ordinary load of four tons are prevented from making more than one trip a day; but they occasionally accomplish two trips a day from steamers, which lie nearer the shore than ships, and also from grain-ships, to which the boatmen appear partial.

2. Although there are 90 boats on the license register, many are out of repair; only 53 available for work. The Master-Attendant has power to withdraw the license from any boat not kept in repair. The knowledge of this power, and the prospect of regular work, may induce the owners to put more boats in working order; but it is not likely that many boats from the neighbouring ports will come in to supplement the numbers.

3. Allowing for some increase in the number of boats, and for increased delivery from steamers, one may reckon on landing at Negapatam 300 tons a day of grain and general cargo.

4. During the month of March there are expected to arrive at Negapatam—

1st,—Three ships (already overdue), with a total load of 2,600 tons of stores for the South Indian Railway;

2nd,—Forty native craft, with rice from Akyab;

3rd,—Three weekly steamers of the British India Company, which are now bringing grain from Negapatam.

If the delivery by these native craft is taken at 8,000 tons, and by the British India Steam Navigation Company's steamers at 1,000 tons by the four steamers during the month, there will be ample work for all the boats available, and every inducement for more to get ready for work by the latter part of the month.

5. The following particulars, learnt at Negapatam, may be interesting:—

A ship with a cargo of 1,700 tons of coal has been 46 days unloading; another ship with 1,300 tons on board has just discharged her cargo in 28 days.

When steamers call with cargo from Negapatam, the boats leave the ships and native craft, and concentrate all their energies on the steamer's cargo, frequently making two trips a day in place of their ordinary single trip.

6. The boats would be able to do more work but for the detention caused by the bar; whether any temporary improvement in the channel could be effected, is a point on which I would not venture an opinion—if, however, it is desired to work a large traffic at Negapatam, this way of increasing the landing-power of the boats will doubtless be considered along with others.

7. If it be assumed that the special aid given to the conveyance of grain from Negapatam to Bangalor will change the natural current of trade, which at present flows from Negapatam and the Tanjor district towards Madura and the south, it remains to consider what amount of traffic can be worked over the two portions of the South Indian Railway—

(*a*) The narrow-gauge line from Negapatam to Trichinopoly.

(*b*) The broad-gauge line from Trichinopoly (after transhipment to Erod).

It is stated by the Agent of the South Indian Railway that there are sufficient narrow-gauge engines and rolling-stock to work from Negapatam to Trichinopoly all the grain which the broad-gauge railway stock can work away; and as the whole of the existing traffic is conveyed by day-trains, many more trains can be worked over the line. Any restrictions imposed by Government on working trains over an unfenced line at night will probably be withdrawn; between Negapatam and Trichinopoly, the line is fenced.

8. Up to Trichinopoly no limit need be stated; at this point the break of gauge necessitates transhipment. The Traffic Manager considers that he cannot undertake to tranship more than 30 wagons, or about 190 tons, a day in each direction. Although I am surprised at the moderate estimate of the work considered practicable with the existing accommodation, it is possible that the less active habits and the smaller physical powers of the loading coolies at Trichinopoly present difficulties. The Traffic Manager considers an additional transhipment-platform necessary, and, with this, he is prepared to work up to the powers of the broad-gauge engines and rolling-stock.

9. Next to the landing powers at Negapatam, the capacity of the broad-gauge section of the South Indian Railway fixes the limit to the traffic from Negapatam to Bangalor. There are altogether ten broad-gauge engines, suitable for running trains; but of these, five are now undergoing heavy repair. In ten days' time, one engine of the five now running must go in for repairs, and it will be replaced by a larger one, of which the repairs are nearly completed. After an interval of three weeks, another engine will be turned out repaired; and another after a similar interval.

The Locomotive Superintendent considers himself in a position to carry, after the 10th March 1877, 40 grain-wagons a day, or 250 tons; and after 1st April 60 grain-wagons a day, or 375 tons, to Erod.

10. The engine-power being sufficient for the probable landing-powers at the port of Negapatam, even after allowing for a large increase, it remains to consider the sufficiency of the wagon stock. The stock of 200 wagons of all sorts would be enough to work about 60 wagons a day between Trichinopoly and Erod; but the through booked grain will most expeditiously be carried on to Bangalor in the same wagons, and the wagon stock of the South Indian Railway Company will not suffice for this purpose.

11. To work to the best advantage, a system of wagon interchange would have to be established at Erod Junction.

In this way the stock of both lines may be worked with most effective results:

For every loaded wagon sent off from the South Indian Railway, an empty wagon should, if required, be made over by the Madras Railway Company.

12. But the distance from Erode to Bangalor is so little shorter than that from Madras to Bangalor, that little advantage of economy of the engine-power and rolling-stock of the Madras Railway can be claimed for this route. And although, from the recently-increased number of engines and from more regular working, an increased delivery of grain may confidently be expected from Madras, it does not seem likely that the Madras-Arconum Line will for some time yet be overworked, or that the engines can be more profitably employed elsewhere.

13. With regard to the possibilities of working traffic from Negapatam to Bangalor, I consider that, making allowances for all the difficulties in the way of working a large traffic *viâ* Negapatam, it is possible—by bringing into use the power of the South of India Railway, and by an expenditure of the power of the Madras Railway equal to, or perhaps a little less than is required to work the same traffic from Madras—to carry from Negapatam to Bangalor about 200 tons of grain a day during March, and up to 300 tons a day in April and subsequent months, if more landing-power can be provided at Negapatam, and that there are some advantages in drawing a portion of the food-supply of Bangalor from Negapatam.[1]

Until the Madras-Arconum section of the Madras Railway is worked so as to feed to the fullest extent all the north-west and south-west lines, which are with the least expenditure of carrying-power supplied from Madras, there is nothing to be gained by the use of the Negapatam route.

14. If traders begin now to arrange for consignments *viâ* Negapatam, their consignments may arrive about April, or when the greatest strain on the Madras-Arconum section is likely to occur. Before the end of the month of May, the Beypor traffic will probably be stopped by the monsoon, and the Negapatam traffic, practicable all through the rainy season, will become of great importance to the country.

Captain W. S. S. Bisset, R.E., in his memorandum of the 3rd March 1877, on the carriage of grain for Bangalor via Negapatam, says:—

I have ascertained—

1st,—That grain sent to Negapatam can be landed easily to the extent of 200 tons a day, after allowing for the landing of other general cargo.

2nd,—That the boats can take the grain-bags direct from the ship to the river-bank, within 400 yards of the railway station.

3rd,—That, by the order of his Grace the Governor of Madras, the rates for the carriage of grain from Negapatam to Bangalor have been made the same as the rates from Madras to Bangalor.

4th,—That the Agent and officers of the South Indian Railway are prepared to carry from Negapatam during March, 40 wagons, or 250 tons—and during April and subsequent months, 60 wagons, or 375 tons—a day, and that they can certainly carry at once 200 tons a day.

5th,—That fears are entertained that, with equally urgent demands from other distressed districts, the carrying-powers of the railway from Madras to Arconum will be unequal to the pressure, and that if additional supplies are required for Bangalor, it will be necessary to draw them from another source than Madras.

6th,—That grain can be landed at Negapatam throughout May, June, and July, while the western ports will be closed by the monsoon early in May.

5. The merchants said they would at once enquire, and instruct their agents to send some of their grain *viâ* Negapatam, so that they might get as much as possible by using all routes.

They had misgivings about the supply of wagons at Negapatam and Trichinopoly, and some of them said they had already been getting a few wagons from Negapatam, and that they had actually experienced this difficulty, and that their grain was much delayed in transit. I referred to the assurance given to me by the railway officers, and as regards delay I suggested that a few days' delay on the way was less objectionable than long detention on the Madras beach. A merchant objected that he could get no *ragi* at Negapatam, and that it could only be got at Beypor, where it comes down the coast from the north. No answer could be given, for *ragi* is not to be bought on the eastern side of India.[2]

Captain W. S. S. Bisset, R.E., in his memorandum of the 13th March 1877, on the state of the engine stock of the Madras Railway, says:—

2. Ten engine-drivers have been engaged in England, and are expected to reach Madras by the 29th March. Thirty-four engines now running will require repairs during the year. Of these, 11 must be taken off work in the month of March, and the others at intervals.

3. Of the engines now undergoing repairs, seven will be sent out in March, one in April, and two or three in the following months. Of those to be sent out in March, one is a shunting engine.

4. Twelve of the borrowed engines have arrived, and are probably now at work; but the six engines got from the East Indian Railway Company are old and are expected to need frequent repairs.

5. Colonel Shaw-Stewart believes that an application has been made on behalf of the Great Indian Peninsula Railway Company for the use of the six State Railway engines which have yet to be received from Bombay.

6. I would submit the following observations:—

There is already a clear gain of about seven engines, and it may reasonably be expected that when the remaining six engines arrive the clear gain will remain at from 10 to 12 engines.

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[1] See page 161.

[2] Little attention seems to have been paid to the nutritive value of the different kinds of cereals.

7. With reference to the proposal to divert the six engines from Madras for the use of the Great Indian Peninsula Railway, I have already represented that, while the engines of the Great Indian Peninsula Railway Company are worked very hard, the work is not, as on the Madras Railway, almost entirely grain traffic for the prevention of famine, and that with the six engines there will be not more than sufficient power to carry the requisite amount of grain, even if the daily supply from all sources remain uniformly up to the full amount of the estimate.

STATEMENT showing the present working (week ending 3rd March), and that possible with the additional engines :—

Despatched from—	Number of Wagons a day. Present.	Probable.
Madras { to north-west line	73	90
Madras { to south-west line	68	90
Raichor	104	140
Beypor	45	} 60
Erode	—	
Total	290	380
Or, total tons a day	2,030	2,660

8. It is true that 10 powerful engines have been ordered by the Madras Railway Company from England, but these cannot be at work till the end of June.

To be secure against the fluctuations in traffic, which leave trains empty one week and crowd them the next, it is necessary to have six powerful goods-engines in addition to those already arrived and the six daily expected; for—

The heavy goods engines on the line are all occupied on the severe gradients on the north-west and the south-west lines, and on the Bangalor branch. There are but a few of them left to work the trains on the Madras-Arconum section. In Madras, stocks of grain exist large enough and near enough to the affected districts to meet a sudden demand, and until the line from Madras to Arconum is doubled, it is only by running heavier trains on this section that supplies to the famine country can be increased. There is not the same immediate necessity for additional wagon stock, but if the supplies of grain in through wagons at Raichor are not more fully maintained, it will probably be necessary to borrow wagons.

Captain W. S. S. Bisset, R.E., in his memorandum of the 31st March 1877, on his visit to Bombay and the Nagpor District of the Great Indian Peninsula Railway, says :—

I visited Bombay on the 19th March 1877, for the purpose of inquiring into the diminution of the supply of food-grain from the north to the Ceded Districts. I was present at a meeting held on the 20th March between the Consulting Engineer and the Agent and the General Traffic Manager of the Great Indian Peninsula Railway.

2. A resolution was recorded, that the grain destined for the famine districts should have preference to all other consignments, and that wagons for its conveyance should be provided.

3. The accumulations of grain which existed in January 1877* had been cleared off by the middle of February; the fresh stocks† now lying in the railway-stations are much smaller, and are to a larger extent destined for Bombay, probably for shipment‡ to the ports on the western coast. The detention of grain at the stations is not so prolonged as formerly, but, owing to the demand for carriage from all parts of the Great Indian Peninsula Railway and to the large through traffic from Hindustan to Bombay, it has not been possible to provide wagons or train-room to carry away the grain as fast as it is offered.

* On 19th January 1877 there were

lying at Nagpor	8,500 tons grain.
At smaller stations	7,000 „ „
Total	15,500 „ „

† On 21st March 1877 there were

lying at Nagpor	1,500 tons grain.
At smaller stations	3,500 „ „
Total	5,000 „ „

‡ The shipments from Bombay to the Southern Mahratta ports amounted to nearly 9,000 tons in the first 15 days of March. The despatches to the more southerly ports are not abstracted.

The reduced accumulations at the railway-stations indicate some reduction on the demand for carriage, but there have been changes in the mode of receiving goods which have tended to limit these deposits; and there seems no doubt that large quantities of grain are kept back in the bazars.

The brokers at the minor stations say they keep much of their grain back rather than take the risks of exposure to the weather and to the ravages of white-ants during the unknown period of detention at the smaller railway-stations; and for these reasons, I believe that the reduction of the demand for carriage is not proportionate to the reduction in the weight of goods awaiting despatch.

4. The system of registration of goods actually deposited in the Nagpor station-yard is most carefully carried out, and appears to give the greatest satisfaction. The merchants understand it thoroughly, and look after their own and their neighbours' allotments very sharply.

At the smaller stations, some of the consignors think their claims are postponed for the advantage of senders from other stations; but they have no grounds for this belief. The only important requirement is that more goods shall be carried away, and, with the present

extraordinary pressure on the railway, this is the cry from all sides, and it is not, perhaps, much satisfaction to the merchants who have to wait, to know that their goods are having in their due turn, their proper place in the largest traffic that has ever been carried on this railway.

Instead of an undefined date for clearing off the accumulations at the roadside stations, there should be a periodical clearance, on which goods might be received, consigned, and despatched to such extent as is practicable. On the motion of Colonel Hancock, Consulting Engineer for Railways, this proposal has been considered by Mr. Conder.

5. A few of the consignors at the smaller stations were loud in their appeals for wagons —not to take away grain, but to convey linseed to Bombay to meet contracts made for March.

In the grain trade there is not at present the same prospect of large profits that there was in January, and, although there appears to be abundance of grain for despatch, there is less speculation and less anxiety for immediate transport. The anxiety is proportionate to the anticipation of profit, and the present prices in the famine districts of Sholapur and Madras give a sufficient, but not a very large, profit.

6. There is a heavy demand for grain from Bombay, apparently of equal urgency with the needs of the Dakan and Madras.

The shipments from Bombay to the Southern Mahratta Ports amounted to nearly 9,000 tons in the first 15 days of March.

From the 15th to 21st March 1877, the despatches from Nagpor are shown below:—

	Tons from Nagpur to		
	Bombay.	Puna and Sholapur.	Raichor and Madras.
Linseed	493	—	—
Wheat	188	455	148
Jowari	219		
Rice	60		
Pulses	65		
Total tons	1,025	455	148
On the 22nd March the consignments in tons were:—			
Linseed	80	—	—
Grains, &c.	180	176	66
Total tons	260	176	66

Although it is certain that much more grain would have been despatched from Nagpur if there had been more wagons available, it is apparent that the merchants might have sent much more to the Puna and Sholapur Districts and to Madras, if they had preferred doing so to sending linseed or grain to Bombay. A very small rise in prices will again divert the flow of traffic to the south.

7. Although the deliveries of grain by railway have during the past fortnight been smaller than those which in the early part of the month excited apprehension, the prices of grain have remained steady at Puna, Sholapur, and in the principal markets of the ceded districts of Madras. It may be inferred that the requirements of grain have been estimated too high, and that the present importations are sufficient.

8. The Great Indian Peninsula Railway has so much to do that it must sacrifice some of its Bombay traffic to carry more grain to Sholapur and Madras. The Government of India are arranging to augment the engine power of this railway; and in the meantime, the Agent and Mr. Conder are prepared for the sacrifice, and have arranged that the requisite number of wagons shall be provided as soon as the grain is presented.

The Madras Railway has, comparatively speaking, nothing but grain and salt to carry at present, and it is capable of carrying about half as much more grain than it conveyed[1] in March.

There is reason to hope that the railways will be equal to their share of the work, and little room to doubt the sufficiency of carriage from the railways to the interior of the affected districts.

Captain W. S. S. Bisset, R.E., in his memorandum of the 25th April 1877, says:—

Up to the end of March there was no effective increase to the engine power, for, although the additional engines were in the hands of the Madras Railway Company, the drivers for these engines had not reached their posts till the first week of April.

With the increased demand which is just beginning to be felt in the ceded districts of Madras, and which is likely to grow daily till the rains fall, the additional engine power will be fully engaged; and while the despatches of grain from Madras cannot be largely increased without suspension of the ordinary traffic, there is even now train-room for many more grain-wagons from the north.

[1] Approximate total delivered by rail from all sources during March, 52,000 tons.

By the Madras Railway : for-warded from—	Tons of grain to the District of — Madras.	North Aroot.	Maisur.	Salem.	Coimbator.	Malabar.	Between Codur and Wontimettah.	Cuddapah and Yerra-gunthla.	Gooty and Tadputri.	Bellary.	Adoni.	Total.
Month ending 31st March 1877.												
Madras	29	4,677	12,958	2,358	465	...	407	7,426	2,955	2,955	517	34,747
Beypur	...	293	1,679	2,308	3,017	372	...	...	...	...	...	7,669
South Indian Railway	2	26	499	636	46	...	...	...	...	...	...	1,209
Great Indian Peninsula Railway	30	1	64	16	...	...	...	338	343	4,441	3,293	8,236
North Aroot	15	47	97	70	...	...	6	2	...	4	...	267
Salem	...	4	87	...	10	...	...	4	...	...	...	294
Coimbator	...	8	100	...	74	...	...	...	...	...	...	391
Total Tons	76	5,056	15,484	5,786	3,612	372	413	7,796	3,298	7,100	3,810	52,803
For a period of eight months, from 1st August 1876 to 31st March 1877.												
Madras	514	22,316	45,542	5,486	1,869	9	...	33,045	...	37,335	...	146,464
Beypur	67	2,501	11,858	7,184	10,773	1,856	...	523	...	678	...	35,430
South Indian Railway	78	514	8,197	3,170	1,617	824	...	585	...	362	...	15,347
Great Indian Peninsula Railway	329	297	2,208	148	10	...	...	4,138	...	53,553	...	60,683
North Aroot	761	701	3,561	769	795	283	...	3,160	...	640	...	10,670
Salem	84	381	4,025	1,540	453	78	...	467	...	271	...	7,299
Coimbator	17	410	3,337	3,747	1,177	225	...	647	...	250	...	9,810
Malabar (Districts)	16	130	2,559	1,467	3,548	4,399	...	44	...	4	...	12,167
Cuddapah	11	28	...	1	...	...	...	1,296	...	1,236	...	2,572
Bellary and Kurnool	...	53	22	9	5	...	...	1,585	...	7,807	...	9,461
Maisur Territory	9	43	883	89	1	4	...	...	...	25	...	1,054
Total Tons	1,886	27,374	82,192	23,610	20,248	7,678	...	45,490	...	102,161	...	310,957
During the following eight months, from all sources of the 11 *districts of the Madras Railway.*												
1876.												
August	429	653	3,049	642	1,667	2,169	...	782	...	3,359	...	12,750
September	328	1,949	6,173	1,264	1,238	615	...	762	...	5,040	...	17,369
October	234	1,863	14,485	1,643	925	839	...	2,641	...	8,466	...	31,096
November	368	1,879	10,194	2,183	1,962	1,324	...	47,640	...	15,189	...	37,859
December	107	6,755	11,515	4,475	3,451	868	...	10,091	...	21,729	...	59,011
1877.												
January	201	5,034	12,072	4,908	3,567	966	...	8,856	...	20,455	...	56,059
February	143	4,165	9,220	4,037	3,876	525	...	9,389	...	13,614	...	44,919
March	76	5,056	15,484	5,786	3,612	372	...	8,209	...	14,208	...	52.803
Total	1,886	27,354	82,192	23,610	20,248	7,678	...	45,490	...	102,161	...	310,957

Remarks.

The best month's work { Out of Madras was in March 1877, when 34,747, tons were despatched.
" Beypur " January " 10,000 " "
From Raichor " February " 18,000 " " southwards.
The additional engine-power will be fully engaged.

Captain W. S. S. Bisset, R.E., in his memorandum of the 28th April 1877, says:—

For August, September, and October 1876, the statements of the Madras Board of Revenue show the import of food-grains into the port of Madras, 5,637 tons. During the same period the Madras Railway alone carried out of Madras 20,446 tons of grain; whence came this supply?

The figures are the imports from non-subordinate ports only, the imports of food-grains from the ports subordinate to the Madras Presidency during these months having amounted to 38,000 tons in addition to the 5,637 tons mentioned.

During November and December 1876, 55,466 tons were delivered in Madras from beyond the Presidency, and 30,000 tons from the subordinate ports, while during the first three months of 1877 the imports of food-grains into the port of Madras amounted to 165,852 tons from ports beyond, and 36,000 tons from other ports within the jurisdiction of the Local Government. The imports into the port of Madras, commencing in August with a total of 15,000 tons, rose up to January 1877, when the total imports from all sources into Madras alone exceeded 80,000 tons.

The total food-supply made available in Madras from August 1876 to the end of March was therefore—

	Tons.
From subordinate ports	104,000
From non-subordinate ports	227,000
Total	331,000

Of this vast supply, the Madras Railway forwarded from Madras over 146,000 tons, its maximum despatches having amounted to 35,000 tons during March.

If the period August to October 1876 be included, the total imports into the Madras Presidency will be:—

Madras received in—	Tons of Food-grain from Ports.		
	Beyond the Presidency (non-subordinate).	Subordinate.	Total.
1876.			
August	1,769	38,000	43,637
September	875		
October	2,993		
November	26,792	30,000	15,466
December	28,674		
1877.			
January	72,985	36,000	20,1852
February	57,421		
March	35,446		
	226,955	104,000	330,955 [1]
Up to the end of March 1877, the East Coast Ports—Negapatam, Tuticorin and others—received from all sources[2]			25,000
Grand total by sea, Madras and East Coast			355,955
Up to the end of March 1877—by sea, Beypur and Calicut received from all sources[3]			63,000
By sea—other West Coast Ports[4]			55,000
Grand total by sea—West Coast Ports			118,000
By the Great Indian Peninsula Railway—from Northern and Central India, the northern districts of Madras received			61,000
Grand Total of East Coast, West Coast, and Rail			535,000

From 1st August 1876 to 31st March 1877, the Madras Railway carried to the districts of—

	Tons.
Chingleput	514
North Arkot	22,316
Salem	5,486
Coimbator and Malabar	1,178
Cuddapah	33,045
Bellary and Kurnul	37,335
Maisur	45,542
Total	146,454

[1] Of this amount, the Madras Railway forwarded from Madras 146,000 tons into the interior.
[2] Of this, Maisur took 8,000 tons, and the districts served by the Madras Railway 15,000 tons.
[3] Of this, 35,000 tons were sent by rail to Coimbator, Salem, and Maisur.
[4] The whole of this was distributed by cart.

Note, dated 1st June 1877, by the Government of Madras, on imports of grain into the Presidency of Madras and its transport by the Madras Railway.

The additions to the food-stocks of the Presidency by importations by sea from places beyond the Presidency between 1st May 1876 and 30th April 1877 were:—

Months.	Tons of Food-grain by sea.		
	Imports.	Exports.	Difference.
1876.			
May	16,967	9,045	+ 7,922
June	12,283	13,695	— 1,412
July	3,908	11,134	— 7,226
August	3,795	11,118	— 7,323
September	6,109	7,920	— 1,811
October	10,830	9,740	+ 1,090
November	34,746	5,879	+ 28,867
December	52,311	1,872	+ 50,439
1877.			
January	99,923	2,992	+ 96,931
February	86,818	4,739	+ 82,079
March	87,422	5,728	+ 81,694
April	93,379	3,438	+ 89,941
Total tons sea-carried	508,491	87,300	+ 421,191
1875-76	73,394	142,063	— 68,669

2. The exports are to Ceylon. The places whence the imports were received:—

	Tons.
Bengal	354,823
Bombay	68,712
British Burma	63,170
Sind	7,022
Foreign ports in other Presidency	6,363
Ditto beyond India	8,401
Total imports	508,491

3. Information as to the imports by land is not complete. There is no record of the cart traffic, nor of the imports by rail, prior to August of 1876. The grain-trade by land, however, from and to places beyond the Presidency, is ordinarily so very small that the railway exports and imports from August, shown below, may be regarded as the trade for the entire period from April 1876:—

Months.	Tons of Imports from the		Tons of exports to the Maisur Country.	Difference: tons.
	G. I. P. Railway.	Maisur Country.		
1876.				
August	4,039	157	3,049	+ 1,147
September	5,163	79	6,173	— 931
October	4,921	101	14,485	— 9,463
November	7,951	282	10,194	— 1,961
December	12,281	248	11,515	+ 1,014
1877.			12,072	— 4,121
January	7,872	79		
February	10,665	118	9,220	+ 1,563
March	8,226	—	15,484	— 7,258
April	9,583	—	14,909	— 5,326
Total tons rail-carried	70,701	1,064	97,101	— 25,336

4. Thus the total *net* imports from places beyond this Presidency from 1st May 1876 to 30th April 1877 is 395,855, tons.*

5. As to additions to the food-stocks in the distressed districts, the only information available relates to the imports by sea and the traffic on the Madras Railway from August 1876. The returns for the South Indian Railway are not complete.

	Tons.
* By sea	+ 421,191
By land	—25,836
Difference	+ 395,855

* * * * * * * *

7. The traffic by the South Indian Railway up to December 1876 was not of great importance, and the figures are omitted.

The Kistna has been a supplying district, and the extent to which this has been the case is far greater than is represented by the figures given, as very large quantities passed from the district by land into Nellor and Kurnul. In August and September 1876 Nellor was exporting by sea; but this ceased, and after October and November 1876, when native vessels could not ply, imports by sea began. Large quantities have been sent from Madras to Nellor by road and canal. The North and South Arcot, Madura, and Coimbator districts were in the earlier months exporting-districts. The imports by rail into Cuddapah, Bellary, and Kurnul were highest in December. In Cuddapah they have been falling since March, owing to harvesting of spring-crops under wells; while in Bellary and Kurnul they fell in January and February 1877, and have since been rising. The high prices in December may have brought out local stocks. It is probable that much of the South Arcot imports have passed into Salem.

8. The food-stocks received in the distressed districts were chiefly from Madras, from the imports from Bengal, and from the northern parts of this Presidency:—

Imports and exports of Madras for nine months.	Tons of Food-grain.		
	Imports.	Exports.	Quantity retained for consumption.
1876.			
August	14,606	3,299	+ 11,307
September	10,315	6,712	+ 3,603
October	19,048	11,073	+ 7,975
November	40,052	13,208	+ 26,844
December	56,251	30,754	+ 25,497
1877.			
January	76,168	27,620	+ 48,548
February	69,200	20,305	+ 48,895
March	48,469	36,676	+ 11,793
April	41,824	34,137	+ 7,687
Total tons	375,933	183,784	+ 192,149
Particulars—			
By sea	374,002	5,494	+ 368,508
By rail	1,931	178,290	— 176,359
Tons	375,933	183,784	+ 192,149

This quantity, 192,149 tons, is retained for consumption in Madras and tracts (Chingleput, Nellor, and part of North Arcot) easily accessible thence by cart.

9. The additions to the food-stocks distributed show:—

Districts.	Net Imports.	Population.	Rate per 100 for 11 months.
	Tons.	No.	Tons.
Kistna	— 13,871	1,452,374	
Nellor	+ 24,816	1,376,811	2
Cuddapah	+ 47,996	1,351,194	3·9
Bellary Kurnool	} + 109,237	{ 1,668,006 959,640	} 4·6
Madras and Chingleput	+ 192,149	1,254,879	17
North Arcot	+ 19,437	2,015,278	1
South Arcot	+ 10,575	1,755,817	·7
Madura	+ 11,920	2,266,615	·6
Tinnevelley	+ 33,569	1,693,959	2
Coimbator	+ 18,511	1,763,274	1·2
Salem	+ 22,877	1,966,995	1·2
Total	— 474,543	19,524,842	2·7

These results, tainted with error (as the land-traffic is not included), are nevertheless instructive. At 1½ lbs. per head per diem (a low estimate), 1,000 persons will eat 20·1 tons in a month of 30 days. For Bellary, Cuddapah, and Kurnul, therefore, it may be stated that from one-fifth to one-fourth of the population are fed on imported grain. As a good deal of the rail-borne grain has gone from these districts into Maisur and Haidarabad, the lower proportion is more likely to be correct.

South Indian Railway.

	Madras Railway.	Tanjor.	Trichinopoly.	Madura.	Tinnevelly.	Coimbator.	Chingleput.	North Arcot.	Total.
	Tons of Food-grains forwarded from								
1876.									
2nd quarter	1,804	5,648	969	1,670	827	112	...	14	10,544
3rd "	4,862	4,917	1,699	2,097	857	536	...	3	14,971
4th "	10,098	10,096	1,490	1,192	4,168	368	7	4	27,423
Total ...	16,764	20,661	4,158	4,959	5,852	1,016	7	21	52,938
January to March 1877 ...	...	...	...	Statement not received.					
1st to 28th April 1877 ...	2,122	11,065	...	...	4,340	...	Cuddalor. 54	...	17,581
	Tons of Food-grains received at the Places as above.								
1876.									
2nd quarter	...	6,479	317	335	2,123	1,085	207	58	10,544
3rd "	...	6,424	1,271	1,112	2,958	2,840	354	12	14,971
4th "	108	8,166	6,387	6,277	2,777	2,922	768	18	27,423
Total ...	108	21,069	7,975	7,714	7,858	6,797	1,329	88	52,938
January to March 1877 ...	...	...	...	Returns not received.					
1st to 28th April 1877 ...	1,349	...	...	16,232	...	...	...	...	17,581
	Tons of Food-grains: net imports.								**Remarks.**
1876.									
2nd quarter	− 1,804	+ 831	− 652	− 1,345	+ 1,796	+ 923	+ 207	+ 44	* This quantity is distributed amongst South Indian Railway Districts.
3rd "	− 4,862	+ 1,507	− 428	− 995	+ 2,101	+ 2,304	+ 354	+ 9	
4th "	− 9,990	− 1,930	+ 4,897	+ 5,085	− 1,391	+ 2,554	+ 761	+ 14	
Total ...	− 16,656*	+ 408	+ 3,817	+ 2,755	+ 2,506	+ 5,781	+ 1,322	+ 67	

Tons of Food-grains—Exports by Sea.

Months.	Ganjam.	Vizagapatam.	Godavery.	Kistna.	Nellore.	South Arcot.	Tanjore.	Madura.	Tinnevelly.	South Canara.	Malabar.	Madras.	Total.
1876.													
May	3,439	32	4,360	2,832	85	674	4,462	97	38	746	494	20	17,281
June	690	12	5,096	8,353	2,054	2,129	9,839	453	27	......	93	72	28,817
July	287	14	5,972	7,565	2,306	2,581	6,967	566	9	......	......	257	26,524
August	1,293	61	8,744	7,296	1,196	1,383	7,547	211	10	16	70	201	28,028
September	996	112	5,846	5,112	288	1,302	5,601	291	3	280	211	322	20,364
October	172	497	13,861	2,642	......	1,513	6,818	134	24	798	1,572	115	28,146
November	902	907	12,253	118	......	......	5,678	24	171	4,282	3,073	......	27,408
December	6,512	1,643	17,112	174	3	......	1,660	191	1	5,691	4,447	9	37,443
1877.													
January	6,272	1,399	11,049	53	......	......	1,243	276	71	3,330	7,487	435	31,615
February	15,248	1,837	4,609	230	......	74	3,713	56	28	1,591	5,009	192	32,587
March	11,903	1,099	2,935	1,506	264	50	5,039	557	26	1,526	6,897	1,929	34,531
April	4,328	857	1,673	69	179	......	2,455	1,032	16	2,787	6,385	2,291	22,072
TOTAL, TONS ...	52,042	9,270	93,510	35,950	6,375	9,706	61,022	3,387	424	21,040	35,739	5,843	334,816

Tons of Food-grain—Imports by Sea.

Months.	Ganjam.	Vizagapatam.	Godavery.	Kistna.	Nellore.	South Arcot.	Tanjore.	Madura.	Tinnevelly.	South Canara.	Malabar.	Madras.	Total.
1876.													
May	......	825	186	......	85	60	2,739	2,160	873	311	12,389	5,240	24,868
June	7	757	......	209	4	50	1,019	1,848	547	1	9,947	7,940	22,319
July	......	85	......	......	6	801	1,365	159	1,149	......	568	15,961	20,094
August	......	879	......	......	61	590	419	95	1,901	32	2,002	14,177	20,156
September	16	1,267	4	......	53	456	1,797	245	1,678	114	4,967	9,987	20,584
October	......	210	......	47	......	621	930	441	1,617	212	8,850	18,814	31,742
November	......	......	......	272	......	......	516	357	410	309	11,722	39,684	53,270
December	......	4	......	716	2,623	1,858	610	1,903	1,361	721	16,885	56,144	82,825
1877.													
January	......	59	61	473	5,899	2,536	477	1,642	2,765	1,587	33,153	75,967	126,569
February	......	2	39	435	5,587	2,687	2,036	634	3,093	714	26,634	69,057	110,918
March	......	153	93	700	3,795	6,149	5,391	3,016	8,400	702	34,741	48,393	111,533
April	......	313	481	686	8,728	......	13,242	6,359	9,694	442	40,712	41,779	122,436
TOTAL, TONS ...	23	4,554	864	3,538	26,841	15,808	30,242	18,859	33,488	5,086	204,570	403,143	747,324

Tons of Net Imports by Sea.

Months.	Ganjam.	Vizagapatam.	Godavery.	Kistna.	Nellore.	South Arcot.	Tanjore.	Madura.	Tinnevelly.	South Canara.	Malabar.	Madras.	Total.
1876.													
May	− 3,439	+ 793	− 4,174	− 2,832	......	− 614	− 1,723	+ 2,063	+ 835	− 437	+ 11,895	+ 5,220	+ 7,587
June	− 683	+ 745	− 5,096	− 8,144	− 2,050	− 2,079	− 8,820	+ 1,396	+ 520	+ 1	+ 9,854	+ 7,868	− 6,498
July	− 287	+ 71	− 5,972	− 7,565	− 2,300	− 1,780	− 5,602	− 407	+ 1,140	......	+ 568	+ 15,704	− 6,430
August	− 1,293	+ 818	− 8,744	− 7,296	− 1,135	− 793	− 7,128	− 116	+ 1,891	+ 16	+ 1,932	+ 13,976	− 7,872
September	− 980	+ 1,155	− 5,842	− 5,112	− 235	− 846	− 3,804	− 46	+ 1,675	− 166	+ 4,756	+ 9,665	+ 220
October	− 172	− 287	− 13,861	− 2,595	......	− 892	− 5,888	+ 307	+ 1,593	− 586	+ 7,278	+ 18,699	+ 3,596
November	− 902	− 907	− 12,253	+ 154	......	...	− 5,162	+ 333	+ 239	− 3,973	+ 8,649	+ 39,684	+ 25,862
December	− 6,512	− 1,639	− 17,112	+ 542	+ 2,620	+ 1,858	− 1,050	+ 1,712	+ 1,360	− 4,970	+ 12,438	+ 56,135	+ 45,382
1877.													
January	− 6,272	− 1,340	− 10,988	+ 420	+ 5,899	+ 2,536	− 766	+ 1,366	+ 2,694	− 1,793	+ 27,666	+ 75,532	+ 94,954
February	− 15,248	− 1,835	− 4,570	+ 205	+ 5,587	+ 2,613	− 1,677	+ 578	+ 3,065	− 877	+ 21,625	+ 68,865	+ 78,331
March	− 11,903	− 1,746	− 2,842	− 806	+ 3,531	+ 6,099	+ 352	+ 2,459	+ 8,374	− 824	+ 27,844	+ 46,464	+ 77,002
April	− 4,328	− 544	− 1,192	+ 617	+ 8,549	......	+ 10,787	+ 5,327	+ 9,678	− 2,345	+ 34,327	+ 39,488	+ 100,364
TOTAL, NET TONS ...	− 52,019	− 4,716	− 92,646	− 32,412	+ 20,466	+ 6,102	− 30,481	+ 14,972	+ 33,064	− 15,954	+ 168,832	+ 397,300	+ 412,508

South Indian Railway.

	Madras Railway.	Tanjor.	Trichinopoly.	Madura.	Tinnevelly.	Coimbator.	Chingleput.	North Arcot.	Total.
	Tons of Food-grains forwarded from								
1876.									
2nd quarter	1,804	5,648	969	1,670	827	112	...	14	10,544
3rd "	4,862	4,917	1,699	2,097	857	536	...	3	14,971
4th "	10,098	10,096	1,490	1,192	4,168	368	7	4	27,423
Total ...	16,764	20,661	4,158	4,959	5,852	1,016	7	21	52,938
January to March 1877 ...	...	...	...	Statement not received.					
1st to 28th April 1877 ...	2,122	11,065	...	...	4,340	...	Cuddalor. 54	...	17,581
	Tons of Food-grains received at the Places as above.								
1876.									
2nd quarter	...	6,479	317	325	2,123	1,085	207	58	10,544
3rd "	...	6,424	1,271	1,112	2,958	2,840	354	12	14,971
4th "	108	8,166	6,387	6,277	2,777	2,922	768	18	27,423
Total ...	108	21,069	7,975	7,714	7,858	6,797	1,329	88	52,938
January to March 1877 ...	...	...	...	Returns not received.					
1st to 28th April 1877 ...	1,349	...	...	16,232	...	...	...	...	17,561
	Tons of Food-grains: net imports.								**Remarks.**
1876.									
2nd quarter	− 1,804	+ 831	− 652	− 1,345	+ 1,796	+ 923	+ 207	+ 44	* This quantity is distributed amongst South Indian Railway Districts.
3rd "	− 4,862	+ 1,507	− 428	− 985	+ 2,101	+ 2,304	+ 354	+ 9	
4th "	− 9,990	− 1,930	+ 4,897	+ 5,085	− 1,391	+ 2,554	+ 761	+ 14	
Total ...	− 16,656*	+ 408	+ 3,817	+ 2,755	+ 2,506	+ 5,781	+ 1,322	+ 67	

Months.	Ganjam.	Vizagapatam.	Godavery.	Kistna.	Nellore.	South Arcot.	Tanjore.	Madura.	Tinnevelly.	South Canara.	Malabar.	Madras.	Total.
1876.													
May	3,439	32	4,360	2,832	85	674	4,462	97	38	746	464	20	17,281
June	690	12	5,096	8,353	2,054	2,129	9,839	452	27	......	93	72	28,817
July	287	14	5,972	7,565	2,306	2,581	6,967	566	9	......	......	257	26,524
August	1,293	61	8,744	7,296	1,196	1,383	7,547	211	10	16	70	201	28,028
September	996	112	5,846	5,112	288	1,302	5,601	291	3	280	211	322	20,364
October	172	497	13,861	2,642	......	1,513	6,818	134	24	798	1,572	115	28,146
November	902	907	12,253	118	......	......	5,678	24	171	4,282	3,073	......	27,408
December	6,512	1,648	17,112	174	3	......	1,660	191	1	5,691	4,447	9	37,443
1877.													
January	6,272	1,399	11,049	53	......	......	1,243	276	71	3,330	7,487	435	31,615
February	15,248	1,837	4,609	230	......	74	3,713	56	28	1,591	5,009	192	32,587
March	11,903	1,099	2,935	1,506	264	50	5,039	557	26	1,526	6,897	1,929	34,531
April	4,328	857	1,673	69	179	......	2,455	1,032	16	2,787	6,385	2,291	22,072
TOTAL, TONS ...	52,042	9,270	93,510	35,950	6,375	9,706	61,022	3,887	424	21,040	35,739	5,843	334,816

Tons of Food-grain—Imports by Sea.

Months.	Ganjam.	Vizagapatam.	Godavery.	Kistna.	Nellore.	South Arcot.	Tanjore.	Madura.	Tinnevelly.	South Canara.	Malabar.	Madras.	Total.
1876.													
May	......	835	188	......	85	60	2,730	2,160	873	311	12,389	5,240	24,868
June	7	757	......	209	4	50	1,019	1,848	547	1	9,947	7,940	22,319
July	......	85	......	......	6	801	1,365	159	1,149	......	568	15,961	20,094
August	......	879	......	......	61	590	419	95	1,901	32	2,002	14,177	20,156
September	16	1,267	4	......	53	456	1,797	245	1,678	114	4,967	9,987	20,584
October	......	210	......	47	......	621	930	441	1,617	212	8,850	18,814	31,742
November	......	......	......	272	......	......	516	357	410	309	11,722	39,684	53,270
December	......	4	......	716	2,623	1,858	610	1,903	1,361	721	16,885	56,144	82,825
1877.													
January	......	59	61	473	5,899	2,536	477	1,642	2,765	1,537	33,153	75,967	126,569
February	......	2	39	435	5,587	2,687	2,036	634	3,093	714	26,634	69,057	110,918
March	......	153	93	700	3,795	6,149	5,391	3,016	8,400	702	34,741	48,393	111,533
April	......	313	461	688	8,728	......	13,248	6,859	9,694	442	40,712	41,779	122,436
TOTAL, TONS ...	23	4,554	864	3,538	26,841	15,808	30,342	18,859	38,486	5,095	204,670	403,143	747,324

Tons of Net Imports by Sea.

Months.	Ganjam.	Vizagapatam.	Godavery.	Kistna.	Nellore.	South Arcot.	Tanjore.	Madura.	Tinnevelly.	South Canara.	Malabar.	Madras.	Total.
1876.													
May	− 3,439	+ 793	− 4,174	− 2,832	......	− 614	− 1,723	+ 2,063	+ 835	− 437	+ 11,895	+ 5,220	+ 7,587
June	− 683	+ 745	− 5,096	− 8,144	− 2,050	− 2,079	− 8,820	+ 1,396	+ 520	+ 1	+ 9,854	+ 7,868	− 6,498
July	− 287	+ 71	− 5,972	− 7,565	− 2,300	− 1,780	− 5,602	− 407	+ 1,140	......	+ 568	+ 15,704	− 6,430
August	− 1,293	+ 818	− 8,744	− 7,296	− 1,135	− 793	− 7,128	− 116	+ 1,891	+ 16	+ 1,932	+ 13,976	− 7,872
September	− 980	+ 1,155	− 5,842	− 5,112	− 235	− 846	− 3,804	− 46	+ 1,675	− 166	+ 4,756	+ 9,665	+ 220
October	− 172	− 287	− 13,861	− 2,595	......	− 892	− 5,888	+ 307	+ 1,593	− 586	+ 7,278	+ 18,699	+ 3,596
November	− 902	− 907	− 12,253	+ 154	......	...	− 5,162	+ 333	+ 239	− 3,973	+ 8,649	+ 39,684	+ 25,862
December	− 6,512	− 1,639	− 17,112	+ 542	+ 2,620	+ 1,858	− 1,050	+ 1,712	+ 1,360	− 4,970	+ 12,438	+ 56,135	+ 45,382
1877.													
January	− 6,272	− 1,340	− 10,988	+ 420	+ 5,899	+ 2,536	− 766	+ 1,366	+ 2,694	− 1,793	+ 27,666	+ 75,532	+ 94,954
February	− 15,248	− 1,835	− 4,570	+ 205	+ 5,587	+ 2,613	− 1,677	+ 578	+ 3,065	− 877	+ 21,625	+ 68,865	+ 78,831
March	− 11,903	− 1,746	− 2,842	− 806	+ 3,531	+ 6,099	+ 852	+ 2,459	+ 8,374	− 824	+ 27,844	+ 46,464	+ 77,002
April	− 4,328	− 544	− 1,192	+ 617	+ 8,549	......	+ 10,787	+ 5,327	+ 9,678	− 2,345	+ 34,327	+ 39,488	+ 100,364
TOTAL, NET TONS ...	− 52,019	− 4,716	− 92,646	− 32,412	+ 20,466	+ 6,102	− 30,481	+ 14,972	+ 33,064	− 15,954	+ 168,832	+ 397,300	+ 412,508

The Madras Railway.

Months.	Tons of Food-grain forwarded from										Total.
	Madras or Chingleput District.	Great Indian Peninsula Railway, including Raichor.	South Indian Railway, including Conjeveram.	Districts.							
				Malabar.	North Arcot.	Salem.	Coimbator.	Maisur.	Cuddapah.	Bellary and Kurnool.	
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876.											
August	3,098	4,039	1,573	1,081	1,661	539	106	157	79	417	12,750
September	6,390	5,163	2,030	836	1,253	600	129	79	116	773	17,369
October	10,958	4,921	5,124	2,267	2,415	1,751	1,946	101	878	735	31,096
November	13,208	7,951	2,432	5,157	2,380	1,951	3,374	282	550	574	37,859
December	30,745	12,281	1,337	8,073	1,490	665	2,046	248	389	1,737	59,011
1877											
January	27,185	7,872	1,151	12,924	572	932	1,330	79	371	3,653	56,059
February	20,113	10,665	481	10,065	632	577	488	118	189	1,591	44,919
March	34,747	8,226	1,209	7,669	267	294	391	......	......	......	52,803
April	31,846	9,583	974	10,978	85	144	406	......	......	......	54,016
Total	178,290	70,701	16,311	59,050	10,755	7,443	10,216	1,064	2,572	9,480	365,882

Tons of Food-grain received at

Months.	Madras or Chingleput District.	Great Indian Peninsula Railway, including Raichor.	South Indian Railway, including Conjeveram.	Malabar.	North Arcot.	Salem.	Coimbator.	Maisur.	Cuddapah.	Bellary and Kurnool.	Total.
1876.											
August	429	......	......	2,169	653	642	1,667	3,049	782	3,359	12,750
September	328	......	......	615	1,949	1,264	1,238	6,173	762	5,040	17,369
October	234	......	......	839	1,863	1,643	925	14,485	2,641	8,466	31,096
November	368	......	......	1,324	1,879	2,183	1,962	10,194	4,760	15,189	37,859
December	107	......	......	868	6,775	4,475	3,451	11,515	10,091	21,729	59,011
1877.											
January	201	......	......	966	5,034	4,908	3,567	12,072	8,856	20,455	56,059
February	143	......	......	525	4,165	4,037	3,826	9,220	9,389	13,614	44,919
March	76	......	......	372	5,056	5,786	3,612	15,484	8,209	14,208	52,803
April	45	......	201	447	2,818	5,382	6,479	14,909	5,078	16,657	54,016
Total	1,931	......	201	8,125	30,192	30,320	28,727	97,101	50,568	118,717	365,882

Tons of Net Imports of Food-grains.

Months.	Madras or Chingleput District.	Great Indian Peninsula Railway, including Raichor.	South Indian Railway, including Conjeveram.	Malabar.	North Arcot.	Salem.	Coimbator.	Maisur.	Cuddapah.	Bellary and Kurnool.	Total.
1876.											
August	− 2,669	− 4,039	− 1,573	+ 1,088	− 1,008	+ 103	+ 1,561	+ 2,892	+ 703	+ ,942	......
September	− 6,062	− 5,163	− 2,030	− 221	+ 696	+ 664	+ 1,109	+ 6,094	+ 646	+ 4,267	......
October	− 10,724	− 4,921	− 5,124	− 1,428	− 552	− 108	− 1,021	+14,384	+ 1,763	+ 7,731	......
November	− 12,840	− 7,951	− 2,432	− 3,833	− 501	+ 232	− 1,412	+ 9,912	+ 4,210	+ 14,615	......
December	− 30,638	−12,281	− 1,337	− 7,205	+ 5,285	+ 3,810	+ 1,405	+11,267	+ 9,702	+ 19,992	......
1877.											
January	− 26,984	− 7,872	− 1,151	−11,958	+ 4,462	+ 3,986	+ 2,237	+11,993	+ 8,485	+ 16,802	......
February	− 19,970	−10,665	− 481	− 9,540	+ 3,533	+ 3,460	+ 3,338	+ 9,102	+ 9,200	+ 12,023	......
March	− 34,671	− 8,226	− 1,209	− 7,297	+ 4,787	+ 5,492	+ 3,221	+15,484	+ 8,209	+ 14,208	......
April	− 31,801	− 9,583	− 773	−10,531	+ 2,733	+ 5,238	+ 8,073	+14,907	+ 5,078	+ 16,657	......
Total	−176,359	−70,701	−16,110	−50,925	+19,437	+22,877	+18,511	+96,037	+47,993	+109,237	......

RAILWAYS.		TOTAL FOR THREE HALF-YEARS.				PER CENTAGE OF TOTAL GOODS.			REMARKS.
		Ton-miles.	Average. Mileage.	Average. Rate.	Receipts.	Tons.	Ton-miles.	Re-ceipts.	
					Rs.				
MADRAS.									
Famine Traffic	387	146,000,000	162·79	7·56	57,44,956	66·17	68·65	59·83	
Total goods	403	212,681,948	156·91	8·67	96,02,849	...	...	...	
SOUTH INDIAN.									
Famine Traffic	831	27,000,000	97·89	8·11	11,40,265	56·69	64·26	61·00	
Total goods	542	42,017,438	85·36	8·54	18,69,326	...	...	...	
GREAT INDIAN PENINSULA.									
Famine Traffic	324	447,242,923	443·55	6·95	1,61,82,610	48·82	61·08	48·21	*There are no means of arriving at the ton-mileage of, or actual receipts from, famine grain alone.
Total goods	408	732,135,997	354·48	8·80	3,35,64,715	...	...	...	† Includes grain re-booked.
EAST INDIAN.									
Famine Traffic	231	126,309,231	256·09	6·23	40,95,514	12·19	11·14	9·52	
Total goods	193	1,133,471,479	280·13	7·29	4,30,27,143	...	...	...	
EASTERN BENGAL.									
Famine Traffic	,755	17,420,770	130·24	8·29	7,51,926	21·20	22·38	18·09	
Total goods	,862	77,823,670	123·36	10·25	41,55,799	...	...	...	
SIND, PANJAB AND DELHI.									
Famine Traffic	,832	18,971,358	184·49	7·97	7,87,245	13·89	18·37	15·36	(a) August to December 1876. (b) July to September 1877.
Total goods	,377	103,223,235	139·74	9·50	51,24,574	...	...	...	Allowance made for broken periods. ⅕ deducted in the December 1876 half-year, and ⅓ in the December 1877 half-year.
OUDH AND ROHILKUND.									
Famine Traffic	,046	1,654,620	126·83	5·44	46,914	2·47	2·98	2·32	(a) August to December 1876. (b) July to October 1877.
Total goods	,698	57,028,102	107·71	6·69	20,19,709	...	...	...	Allowance made for broken periods.
RAJPUTANA.									
Famine Traffic	,300	1,340,000	104·69	9·17	64,000	4·75	4·33	2·85	The Railways not mentioned have been omitted by order of the Deputy Agent, the *traffic having been but slightly affected by the Madras famine.
Total goods	,585	30,909,823	110·95	13·97	22,49,099	...	...	...	
HOLKAR AND NEEMUCH.									
Famine Traffic	,274	853,936	42·12	13·99	62,221	26·38	22·44	19·07	
Total goods	,830	3,804,789	49·52	16·46	3,26,200	...	...	...	
BOMBAY, BARODA AND CENTRAL INDIA.									
Famine Traffic	,465	10,320,392	197·58	7·62	4,00,116	6·11	9·95	7·02	
Total goods ...	,624	103,703,247	152·81	10·79	58,30,008	...	...	...	

Y.

...aras and Kahnpur, and through to Howrah and Bombay.

	HALF-YEAR ENDING JUNE 1878, TO—									
	Kahnpur.		Howrah, *viâ*				Bombay, *viâ*			
			Banaras.		Kahnpur.		Banaras.		Kahnpur.	
	Miles.	Tons.	Miles.	Tons.	Miles.	Tons.	Miles.	Tons.	Miles.	Tons.
Banaras	244	30	...	...	...	...	...	...	...	...
Babutpur	...	...	...	...	...	...	...	...	...	...
Phulpur	...	...	...	...	...	...	...	...	...	...
Jalalganj	...	...	...	...	...	...	...	...	...	...
Jaunpur, Ci	...	...	...	...	...	...	...	...	...	...
Jaunpur, Ci	208	38	...	...	...	...	...	...	...	...
Mariahui	...	...	...	...	...	...	...	...	...	...
Kheta Serai	...	...	...	...	...	...	...	...	...	...
Shahganj	188	13	...	...	...	...	...	...	...	...
Belwai	...	...	...	...	...	...	...	...	...	...
Malipur	172	56	...	...	...	...	...	...	...	...
Akberpur	160	31	...	...	...	...	...	...	...	...
Goshanganj	146	6	...	...	...	...	...	...	...	...
Tandowli	...	...	...	...	...	...	...	...	...	...
Darsanuggu	129	4	...	...	...	...	...	...	...	...
Ajoodhia	128	36	...	...	...	...	...	...	...	...
Faizabad	124	254	595	1	...	...	...	...	...	...
Sohawul	115	4	...	...	...	...	...	...	...	...
Baragaon	...	...	...	...	...	...	...	...	...	...
Rudhouli	100	31	...	...	...	...	...	...	...	...
Makhdumpu	91	7	...	...	...	...	...	...	...	...
Daryabad	86	47	...	...	...	...	...	...	...	...
Safdarganj	74	12	...	...	759	19	...	...	1,039	18
Nawabganj	62	251	657	10	...	...	...	...	...	...
Damudapur	67	22	...	...	...	...	...	...	...	...
Bindowra	73	64	...	...	...	...	...	...	...	...
Bahramghat	84	454	...	...	...	...	...	...	...	...
Mulhour	...	...	...	...	...	...	...	...	...	...
Lucknow	45	538	674	140	...	...	...	...	1,010	132
Unao	11	10	...	...	...	...	...	...	...	...
Kahnpur	...	...	...	...	...	...	...	...	...	...
Alumnagur	49	36	...	...	...	...	...	...	1,014	9
Maliabad	60	1,703	...	...	745	18	...	...	1,025	66
Rahimabad	68	24	...	...	...	...	...	...	...	...
Sandila	75	786	704	74	...	...	...	...	1,040	75
Sonda	82	11	...	...	...	...	...	...	...	...
Balamow	88	750	...	...	...	...	...	...	...	...
Baghowli	93	670	722	46	...	...	...	...	1,058	10
Hardoi	108	1,730	737	76	...	...	...	...	1,073	242
Chandpur	119	21	...	...	...	...	...	...	...	...
Anjhi	128	1,153	757	200	813	113	...	...	...	...
Shahjehanpu	147	1,172	776	2,709	...	...	...	...	1,112	270
Tilhur	159	727	788	369	...	...	...	...	1,124	416
Bareilly	191	599	820	1,074	...	...	...	...	1,156	547
Aonla	208	225	837	56	...	...	...	...	1,173	9
Chandousi	235	870	864	3,113	...	...	...	...	1,200	1,788
Bijohi	...	...	874	40	...	...	...	...	...	...
Rajghat	263	10	...	...	...	...	...	...	1,234	27
Debai	...	...	...	...	954	248	...	...	...	...
Atrowli	...	...	...	...	963	73	...	...	...	...
Hurdwaganj	...	...	...	...	...	...	...	...	...	...
Bilori	...	...	...	...	...	...	...	...	...	...
Moradabad	262	72	891	56	...	...	...	...	1,227	20
Out Agency	...	...	820	56	...	...	...	...	1,156	30
Ramnuggur	79	5	...	...	...	...	...	...	...	...
Ajgam	21	24	...	...	...	...	...	...	...	...
Kakon	54	2	...	...	...	...	...	...	...	...
Miranpur K	165	114	...	...	...	...	...	...	...	...
Fattahganj	169	171	...	...	...	...	...	...	...	...
Faridpur	179	10	...	m	...	...	...	...	...	...
Babrala	262	46	...	...	...	...	...	...	...	...
T...	...	12,839	...	8,020	...	471	...	...	...	3,659

TABLE 3.

Showing Export and Import of Food-grain (including wheat).

	Tons of Food-grain carried by the Great Indian Peninsula Railway.												B. B. & C. I. Railway.	
	Bombay.		Puna.		Sholápur.		Madras Railway.		Nizam's State Railway.		G. I. P. Railway Stations, Hydarabad Territory.*		Bombay.	
	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In.	Out.
Quarter ending—														
30th September 1876 . .	23,109	159	4,442	624	325	5,548	3,871	...	6,283	2,171	390	9,305	1,432	116
31st December „ . .	90,[illegible]63	16,018	41,684	6,208	25,289	6,448	24,931	184	5,242	4,841	6,330	6,154	6,464	135
31st March 1877 . .	87,327	7,382	20,602	4,129	14,931	7,408	32,848	14	2,153	9,677	9,876	8,101	3,879	713
30th June „ . .	75,300	17,907	27,019	3,931	19,083	5,076	38,700	24	4,574	11,035	10,369	5,347	5,844	1,065
30th September „ . .	70,064	34,059	36,130	3,165	27,271	2,906	34,442	456	15,207	4,718	13,617	1,312	4,579	8,000
31st December „ . .	64,648	2,629	5,798	4,171	2,143	7,228	9,357	888	16,742	415	3,193	754	312	32,496
Total tons during eighteen months	409,511	78,154	135,675	23,228	88,992	34,614	144,149	1,566	50,201	32,857	43,775	30,973	22,510	42,525

	Sea-borne Food-grain export from Bombay to					Sea-borne Food-grain Imports to Bombay from					
	Europe.	Southern Ports.	Guzerat and Kattywar.	Other Indian Ports.	Total tons.	Northern Ports, Guzerat and Kattywar.	Southern Ports.	Cutch and Sind.	Bengal, Madras, and Burma.	Foreign Ports.	Total tons.
Quarter ending—											
30th September 1876 . .	12,185	1,451	451	4,396	18,463	782	5,201	323	2,837	39	9,182
31st December „ . .	10,779	41,944	1,371	15,116	69,210	11,029	10,070	7,917	15,346	868	45,230
31st March 1877 . .	8,798	48,724	3,589	21,048	82,159	6,668	9,826	5,122	13,576	4,366	39,558
30th June „ . .	21,952	55,931	3,559	7,350	88,792	7,444	7,809	7,932	19,525	4,905	47,615
30th September „ . .	12,147	18,328	3,327	5,464	39,266	654	6,101	6,682	12,532	14,928	40,897
31st December „ . .	13,228	4,590	23,244	5,984	47,046	580	12,413	770	28,689	17,409	59,866
Total tons during eighteen months	79,089	170,948	35,541	59,358	344,936	27,157	51,425	28,746	92,505	42,515	242,348

* Including Raichor.

This table is compiled from information given in letter No. 1794R., of the 3rd September 1878, from the Government of Bombay.

	During the year ending 30th September 1877.		
	By rail.	By sea.	Total tons.
Bombay imported	343,520	173,300	516,820
„ exported to the famine districts†	70,657	209,094	279,751

† Bombay exported elsewhere 102,602 tons of food-grain.

Without passing through Bombay, 221,995 tons of food-grain were sent to the famine districts *viâ* Callian by rail.

TABLE 4.

Half-year ending	Bombay, Baroda and Central India Railway.						Great Indian Peninsula Railway.		
	Total.			Famine Grain Traffic only.			Tons of Grain sent to the Famine Districts.		
	Tons lifted.	Ton-mileage.	Receipts, in rupees.	Tons lifted.	Ton-mileage.	Receipts, in rupees.	Bombay.	North-east Line, *viâ* Callian.	Total tons.
December 1876	32,206	5,715,646	2,39,498	13,700	3,959,745	1,53,944	11,928	55,522	67,450
June 1877	42,272	6,577,651	2,89,992	14,700	3,862,908	1,52,731	24,830	93,291	118,121
December „	77,364	14,795,888	6,07,137	13,065	2,497,739	1,02,771	31,936	91,903	123,839
Total . .	151,842	27,089,185	11,36,627	41,465	10,320,392	4,09,446	68,694	240,716	309,410

This is taken from letter No. 1207, of 12th June 1878, from the Government of Bombay, to the Government of India.

TABLE 6.

Quarter ending	Tons of Food-grain by sea to Bombay.						Tons of Food-grain arrived by the Great Indian Peninsula Railway from*				
	Guzerat and Kattywar.	Southern Ports.	Cutch and Sind.	Bengal, Madras, Burma.	Foreign ports.	Total.	Northern Lines.	Bhosawal to Jabalpur.	Nagpur Branch.	Bombay and other Stations.†	Total.
September 1876	...	...	...	...	...	...	4,191	13,359	12,850	22,687	53,087
December „	11,029	10,070	7,917	15,346	868	45,320	58,457	40,702	55,977	60,128	215,264
March 1877	6,668	9,826	5,122	13,576	4,366	39,558	65,715	37,751	31,650	48,514	183,630
June „	7,444	7,809	7,932	19,525	4,905	47,615	63,926	34,892	26,260	60,863	185,941
September „	654	6,101	6,682	12,532	14,928	40,897	72,850	32,466	32,985	67,918	206,216
December „	...	...	...	...	...	...	13,131	51,646	39,941	23,281	127,999
Total . .	25,795	33,806	27,653	60,979	25,067	173,300	278,270	210,816	198,863	283,391	972,137 ‡

* The figures given for the various lines and stations represent the total export by Railway, not that due to famine districts only.
† Excluding Bombay stations on the Bombay, Baroda and Central India Railway, [illegible] Neemuch, and Nizam's State Railways.
‡ These figures include grain re-booked from stations on the Great Indian [illegible] of Bombay.
This table is compiled from letter No. 1794A, of the 3rd September 1878, from the Government [illegible], and from a memorandum of the [illegible] and April 1878, from the Consulting Engineer, Bombay.

Mr. James Caird, C.B., F.R.S., says, in the "Nineteenth Century:[1]"—

No. 29, for July 1879.—We passed the tomb of Akbar at Sikandra, 5 miles north of Agra. In the grand gateway 570 wretched prisoners, whom the over-full gaol could not contain, were lodged and were being taken out in batches for exercise. A more miserable procession it has never been my lot to witness—some manacled on both ankles, carrying their chain; some with a manacle on one; all half-starved and very poor.

Alas for us that such should be the unhappy state of any fellow subject! Some were seated in rows, and as the Sahibs passed, *at a signal from the keeper,* gave a clap with their hands and a very hollow, cheerless cheer.

The gaols at present (cold season of 1878) are overflowing with prisoners for thefts in consequence of the *famine* and high price of food.

On reaching the village, where we had arranged a meeting, the people came out to see us and to lay their tales of misery before us. Their crops had failed; they had no credit, and the native bunyas (shopkeepers) no money to lend. The death-rate had increased tenfold, and more were expected to die.

The growing crops had little promise—the cotton, not 30 lbs. per acre.

And so silent are these people in their distress, that the Settlement Officer, who had been two months encamped on the land, had not observed any particular poverty, nor had become aware that the people were either in a state of famine or dying of it.

At another place, I visited the courts of law. In one, the Assistant Magistrate was dispensing justice. Twelve persons had been tied up in a row the day before and whipped with 30 stripes for theft.

Whilst I was in court, a man was being tried for attempting suicide by jumping into a well: for this he got a month's imprisonment. Suicide is very common. Another Magistrate lately had a case of a man who walked into the Ganges and lay down to drown himself, but was pulled out. On being asked why he did this, he said he could get no work, and he thought his position not likely to be worse in any other condition after death. Upon being asked to promise not to repeat the attempt if let off, he said he would try for three or four days to obtain work; but if he failed, he should have no other alternative. He got twelve months to compose his mind.

The prison at Agra contained 2,375 prisoners whose average weight per man is 6½ lbs. less than it was in 1875: this is attributed to the recent great scarcity of food.

About Lahur the farm servants are paid thus:—

They get two good meals a day, and coarse clothing, and two shillings a month in cash. The labourer's diet consists of unleavened cakes of whatever corn is in season, a little boiled peas and greens, with buttermilk, and sometimes a little butter cooked with the greens.

The morning meal between 8 and 9 is usually of corn-cakes with a pot of butter-milk; and the evening meal of the same kind of cakes hot, with boiled pulse or greens.

They eat on an average *2 lbs. of flour and 4 ozs. of pulse per diem.*

A ploughman, working hard on his own land from morning to night, will eat 3 lbs. of flour. The cakes are usually of wheat and barley mixed, or maize, or millet.

No. 30, for August 1879.—The poverty of the cultivator makes him very dependent on the native money-lender. The first pressure that drives him to seek this aid is the prompt payment demanded of the Government assessment. It is fixed for a term of years, and must be paid, whether the season is good or bad. If the season is bad and the crop partially fails, he has no help but in the bunya (provision dealer and money lender).

Let the Government assessment be so much money in the aggregate for ten years, with a power in the hand of the Collector to suspend collection in bad seasons and double it in good. The present assessment may be very low, but in a bad year, when there is no surplus, a man with no capital has nothing with which to pay it.

When a productive year comes, the assessment is so moderate that the surplus will readily answer the doubled demand, and the poor cultivator will then be able to meet his engagements to the Government without having incurred the ruinous rate of interest which would otherwise have been charged by the money-lender.

This would be a modified plan of Government banking, but applicable only to the payment of the rent or Government assessment, and involving no further risk or detail of management on the part of Government.

No. 31, for September 1879.—The valley of the Brahmaputra contains 20,000 square miles of fine alluvial land,—more than double the area of the cultivated land of Egypt, all fertile, and most of it with abundance of coal and an ample rainfall; it is traversed by a navigable river; but, with all these advantages, it imports rice for the support of the imported coolies who work the tea-estates. There is every opportunity and motive for colonization—people too numerous and on the edge of famine if the rains fail, within 600 or 800 miles, with railway most of the way and a navigable river; the same Supreme Government; and yet three-fourths of this fertile region are in jungle. In the Garrow hills, which project into this plain, coal of excellent quality is found within 250 miles of Calcutta, with water-carriage, wanting only a connecting link between the river and the coal-field.

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[1] Mr. Caird is the only non-official member of the Famine Commission of which General Strachey is president He visited India in the cold season of 1878-79. The Famine Commission was appointed two years ago to report on the subject of "Famine in India;" it has finished its investigations, and is now considering its report.

This high country, inhabited by lawless tribes, is marked "unexplored."

At Dacca, the price of salt is three halfpence per pound. A family of four will consume four pounds a month, or 48lbs a year, at a cost of 6 shillings. The duty is $\frac{9}{10}$ of the price, or $5\frac{5}{11}$ shillings, and, as the earnings of the family are 16 shillings a month, the salt-tax costs them the thirty-fifth part of their wages.

This is equal to a sevenpence income tax, but it is the only tax which the mass of the people pay. In the famine year of 1876-77, rice to the value of half a million sterling was exported to Coconada.

There is but one crop per annum. The cost of interest and maintenance is $1\frac{3}{4}$ shillings per acre, and, as the rates paid by cultivators are

16 shillings per acre for a sugar crop,
8 „ „ „ rice „
4 „ „ „ dry „

there is a large profit to Government from the Godavery irrigation.

The exports of produce from Coconada have increased eightfold in consequence of the irrigation works, and each five years continues to show a growing increase.

At Madras, during the late famine, there was more work done in landing cargo than the most sanguine ever expect to see as a regular trade—all done by lighters attending on ships in the offing.

The food-crops of Madras cover an area of 22,500,000 acres; those of England, 11,600,000 acres. Of the whole, $\frac{1}{13}$ is irrigated from unfailing sources—the rivers of the western range of mountains fed by monsoon rains; and $\frac{2}{13}$ otherwise irrigated.

In Sydapet (Presidency of Madras) an experiment was made as to the value of cowdung as manure:—

Green cholum.	Plot of Land.		
	No. 1, with manure.	No. 2, with ashes of manure.	No. 3, no manure.
1st cuttings, lbs. ...	4,058	4,368	3,140
2nd „ lbs. ...	1,680	1,176	896
Total lbs. ...	5,738	5,544	4,036

The cow-dung when unburnt weighed 3,150 lbs.
„ „ „ burnt „ 130 lbs.

Mr. Lewis, Missionary, who lived in Somerset and Devon, considers the people of Bellary more free from care, better fed, but not so well lodged, and having less expense for clothes and education.

In Baroda, their holdings are separated by low hedges; every one has his well, and, where this is attainable, and the water good, I believe no other irrigation in India can compare with it.

It is impossible to contemplate the present state of India without serious apprehension.

The people under the protection of our rule are increasing in number. The available good land is nearly all occupied, and much of it is deteriorating in productiveness from the exhausting system of agriculture.

The landless class depending on labour is becoming more numerous, while the demand for labour does not increase.

Scarcity is more frequent, because the margin of production beyond the wants of the people is becoming every ten years narrower.

The remedy for this hazardous position is, in less costly Government and establishments, the extension of industrial employment, a sounder system of land tenure, and thereby the substitution of an improving for an exhausting agriculture.

On these points, it will be my duty to place my views before Her Majesty's Government.

It seems to be doubtful whether there was a *famine* in 1877-78 in the North-Western Provinces and Oudh; *scarcity* there was undoubtedly—see

Letter No. 33, of the 3rd September 1877, paras. 3, 4, 5, 6, 8, and 22, 23, 25.
Letter No. 37, of the 27th September 1877, para. 10,

from the Governor General of India to the Secretary of State,—but it may not have culminated in famine. On this subject, the following will be interesting:—

The *Contemporary Review* for December 1879 published an article by Colonel Osborn, in which he gave a narrative of the sufferings of the people in the North-West Provinces and Oudh during the famine of 1877-78. The ex-Secretary to the North-West Government, Mr. C. A. Elliot, came forward with a long letter to the *Times*, denying every statement made by Colonel Osborn. Mr. Caird wrote as follows to the *Times*:—

"Sir,—Mr. Elliot, the accomplished Secretary of the Indian Famine Commission, in his letter published by you this morning, expresses views regarding the management of the late famine in the North-West Provinces which, from his official position, might naturally be construed as those of the Commission. As a member of that Commission, I feel myself bound to ask the English public to suspend their judgment on this question, until the whole case is fully before them. A single illustration will show the propriety of this. It has been estimated, on authority which Mr. Elliott will not question, that 3,420,000 tons of food-grain had been lost

to the provinces by the drought. This is equivalent to the food of 21 millions of the population. If all the money expended by the Government in relief had been laid out in the purchase of food, it would not have kept alive more than one in each 150 of that vast multitude: 1,250,000 died of famine. The loss of food may have been over-estimated, but it must have been due to other circumstances than Government help that the mortality was not much greater. It was not want of labour, but want of food, of which the people died. The blame, I believe, to be in the system, and not so much in the individuals who administer it, and probably least of all in the Viceroy, who must necessarily be guided by the statements laid before him. But into that question it is not necessary now to enter. It is, indeed, with the greatest reluctance that I write to you at all on a subject upon which the Commission is at present deliberating. But the matter is so vital to the smaller cultivators and to the landless poor of India, that, to prevent the misconception which Mr. Elliott's letter might occasion, no alternative is left to me.

"I am, Sir, your obedient servant,

25th December 1879. "JAMES CAIRD."

The *Statesman* of London, 3rd January 1880, page 177, says :—

During the six months of the famine, the amount spent on the relief of the people (forty millions) of the North-West Provinces in 1877-78 was 57,000*l.* and the land revenue exacted 50,000*l.* per diem.

COMPREHENSIVE REVIEW

OF THE

RAILWAY FAMINE TRAFFIC.

STATISTICS OF RAILWAYS.

Railway.	Table Nos.	Railway.	Table Nos.
lras	1, 2, 3, 4, 5	East Indian—	
h Indian	6, 7, 8, 9, 10, 11, 12	Main Line	34, 35, 36, 37, 38, 39, 40, 41, 42
.t India Peninsula	13, 14, 15, 16, 17, 18, 19	Jabalpur Line	43, 44, 45, 46
ıbay, Baroda and Central India ...	20, 21, 22, 23	Oudh and Rohilkhand	47, 48, 49, 50
ɔutana State	24, 25, 26, 27, 28	Eastern Bengal	51, 32, 53
, Panjab and Delhi	29, 30, 31, 32, 33	Holkar State	54
		General	55, 56

Govt. Central Press.—No. 36 C. E. 29 1-79. 2 0.

TABLE

MADRAS

Shewing the Food-grain Traffic during the fiftee

MADRAS TO THE

	Cuddapah. Tons.	Cuddapah. Ton-miles.	Bellary District. Tons.	Bellary District. Ton-miles.	North Arcot. Tons.	North Arcot. Ton-miles.	Mysore Territory Tons.	Mysore Territory Ton-mil[es]
1876.								
August	232	35,691	21	6,348	465	35,418	1,716	366,37[illegible]
September	360	55,917	186	55,790	1,822	151,188	3,540	753,59[illegible]
October	1,288	213,650	2,089	620,641	1,358	110,617	5,935	1,254,4[illegible]
November	2,032	346,352	5,237	1,544,034	1,113	83,884	4,212	895,2[illegible]
December	7,120	1,165,816	9,682	2,731,469	5,922	465,006	6,532	1,361,121
Total ...	11,032	1,817,426	17,215	4,958,282	10,680	846,113	21,935	4,630,881
1877.								
January	5,373	873,292	10,638	2,982,026	3,848	309,937	5,482	1,140,76[illegible]
February	7,576	1,247,794	2,953	826,820	...	...	...	...
March	7,995	1,318,371	6,276	1,747,283	4,670	390,682	12,934	2,730,40[illegible]
April	5,428	903,943	7,857	2,168,157	3,050	262,703	14,059	2,980,811
May	6,846	1,138,651	6,195	1,680,806	4,334	363,954	13,325	2,806,88[illegible]
June	6,241	1,042,680	7,072	1,995,600	5,369	452,403	14,019	2,949,815
Total ...	39,459	6,524,731	40,991	11,400,692	21,271	1,779,679	59,819	12,608,67[illegible]
July	7,069	1,178,506	9,100	2,606,888	4,544	397,443	19,235	4,062,87[illegible]
August	6,401	1,078,483	10,397	2,950,507	6,587	582,201	17,954	3,828,40[illegible]
September	3,698	632,730	8,795	2,520,297	4,742	415,551	16,734	3,570,5[illegible]
October	1,371	230,516	3,303	922,769	7,246	588,611	13,155	2,803,7[illegible]
Total ...	18,539	3,120,235	31,595	9,000,461	23,119	1,983,806	67,078	14,265,6[illegible]
GRAND TOTAL ...	69,030	11,462,392	89,801	25,359,435	55,070	4,609,598	148,832	31,505,20[illegible]

BEYPUR TO THE

	Cuddapah. Tons.	Cuddapah. Ton-miles.	Bellary District. Tons.	Bellary District. Ton-miles.	North Arcot. Tons.	North Arcot. Ton-miles.	Mysore Territory Tons.	Mysore Territory Ton-mil[es]
1876.								
August	...	...	...	...	...	...	...	...
September	...	...	...	...	10	2,590	21	7,539
October	...	...	...	...	174	54,896	786	269,71[illegible]
November	190	89,693	52	30,724	311	94,293	1,093	361,377
December	51	24,633	...	...	569	177,882	2,409	838,05[illegible]
Total ...	241	114,326	52	30,724	1,064	329,661	4,309	1,476,68[illegible]
1877.								
January	...	...	...	...	...	...	...	...
February	60	28,580	24	14,296	638	205,352	3,235	1,151,78[illegible]
March	...	...	...	...	290	90,135	1,693	601,67[illegible]
April	...	...	...	...	47	14,655	1,595	570,00[illegible]
May	16	7,728	...	...	104	32,794	2,219	794,17[illegible]
June	...	...	...	...	46	14,116	1,063	376,0[illegible]
Total ...	76	36,308	24	14,296	1,125	357,052	9,805	3,494,4[illegible]
July	...	...	...	...	108	32,456	1,128	391,02[illegible]
August	...	...	...	...	191	58,269	1,295	445,0[illegible]
September	8	3,864	...	...	172	45,787	1,191	410,2[illegible]
October	...	...	...	...	213	65,387	342	118,0[illegible]
Total ...	8	3,864	...	...	684	201,899	3,956	1,366,1[illegible]
GRAND TOTAL ...	325	154,498	76	45,020	2,873	888,612	18,070	6,337,2[illegible]

No. 1.

RAILWAY.

months from August 1876 to October 1877.

DISTRICT OF—

Salem.		Coimbatore.		Malabar.		Madras.		South Indian Railway.		Total.	
Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.
159	26,671	371	107,029	8	2,656	...	...	...	...	2,972	580,191
203	37,942	91	27,965	...	...	...	...	...	...	6,202	1,082,401
116	19,656	28	8,590	...	...	...	...	...	...	10,814	2,227,643
249	44,384	226	67,962	1,272	69,111	...	...	87	8,141	14,428	3,059,162
1,098	200,491	302	83,608	...	...	...	...	...	...	30,656	6,007,511
1,825	329,144	1,018	295,154	1,280	71,767	...	...	87	8,141	65,072	12,956,908
553	95,421	105	28,797	...	...	...	...	...	...	25,999	5,430,239
...	...	...	...	...	...	...	...	...	...	10,529	2,074,614
2,029	349,570	468	123,275	...	...	...	...	...	...	34,372	6,659,581
2,636	458,188	1,262	337,614	...	...	...	...	...	...	34,292	7,111,416
2,654	440,590	535	140,200	...	...	...	...	...	...	33,889	6,571,086
2,565	413,476	530	147,763	...	...	...	...	...	...	35,796	7,001,737
10,437	1,757,245	2,900	777,649	...	...	...	...	...	...	174,877	34,848,673
3,099	487,554	712	197,125	...	Nil.	Nil.	Nil.	Nil.	Nil.	43,759	8,930,391
5,253	874,350	1,003	291,288	...	...	Nil.	Nil.	...	...	47,595	9,605,321
4,306	709,870	572	168,726	...	...	...	...	15	3,645	38,862	8,021,384
2,135	386,254	911	272,394	16	5,312	Nil.	Nil.	Nil.	Nil.	28,137	5,209,566
14,793	2,458,028	3,198	929,533	16	5,312	...	...	15	3,645	158,353	31,766,662
27,055	4,544,417	7,116	2,002,336	1,296	77,079	...	...	102	11,786	398,302	79,572,243

DISTRICT OF

...	...	66	5,361	1,014	45,147	...	...	...	...	1,080	50,508
20	3,556	247	21,165	542	32,382	...	...	...	...	840	67,232
75	11,527	448	36,520	777	48,115	42	15,834	...	...	2,302	436,605
402	70,605	1,244	110,403	...	...	16	15,324	...	...	3,308	772,419
1,371	268,001	3,142	321,288	998	59,860	...	...	...	...	8,540	1,689,720
1,868	353,689	5,147	494,737	3,331	185,504	58	31,158	...	...	16,070	3,016,484
...	...	...	...	...	...	...	...	...	...	...	...
2,315	470,805	3,639	439,804	516	29,988	17	6,919	...	...	10,444	2,347,524
2,306	476,172	3,015	361,797	372	21,832	...	...	...	...	7,676	1,551,606
2,269	457,851	7,269	870,235	483	30,321	...	...	...	...	11,663	1,943,159
2,047	412,723	6,400	788,919	630	43,717	...	...	...	...	11,416	2,080,051
1,245	252,983	3,802	453,765	1,457	95,854	...	...	...	...	7,613	1,193,414
10,182	2,070,534	24,125	2,914,520	2,458	221,712	17	6,919	...	...	47,812	9,115,754
1,224	234,199	5,860	602,531	1,159	63,798	...	...	...	...	9,479	1,324,909
1,790	334,749	6,563	685,622	872	51,215	...	...	...	...	10,711	1,575,758
4,596	829,919	5,840	598,105	...	...	...	...	...	...	11,807	1,887,902
1,716	301,480	4,636	473,180	299	16,243	...	...	...	...	7,206	974,339
9,326	1,700,347	22,899	2,359,438	2,330	131,256	...	...	...	...	39,203	5,762,908
21,376	4,124,570	52,171	5,768,695	8,119	538,472	75	38,077	...	...	103,085	17,895,146

TABLE

SOUTHERN OF INDIA RAILWAY

	Cuddapah.		Bellary District.		North Arcot.		Mysore Territory.	
	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.
1876.								
August	...	...	...	...	33	4,734	...	...
September	...	...	...	...	103	16,124	731	138,561
October	73	23,296	11	5,104	205	32,829	3,877	745,576
November	207	65,987	332	1,53,607	107	17,262	1,493	285,904
December	270	86,443	15	6,960	16	2,363	787	152,646
Total ...	550	175,726	358	165,671	464	73,312	6,888	13,22,687
1877.								
January	31	9,968	...	...	66	10,790	639	124,055
February	...	...	...	...	31	4,701	167	29,448
March	...	...	6	1,578	31	4,464	500	98,000
April	...	...	...	...	7	840	501	98,196
May	...	...	...	...	18	2,160	1,376	269,672
June	...	...	...	...	11	1,320	1,086	212,856
Total ...	31	9,968	6	1,578	164	24,275	4,269	832,227
July	...	...	...	...	21	2,890	1,816	355,936
August	...	...	10	4,016	10	1,243	2,143	419,167
September	...	...	...	...	20	2,744	1,602	313,992
October	...	...	...	...	213	65,387	342	118,049
Total ...	...	...	10	4,016	264	72,264	5,903	1,207,144
GRAND TOTAL ...	581	185,694	374	171,265	892	169.851	17,060	3,362,058
						GREAT INDIAN PENINSULA		
1876.								
August	383	72,818	2,978	295,294	115	41,227	428	206,296
September	221	41,727	4,090	382,381	26	8,996	737	355,234
October	86	16,070	4,715	415,786	...	...	72	34,704
November	20	3,587	7,734	650,507	10	3,460	164	79,048
December	948	162,678	10,771	782,443	150	52,576	358	172,556
Total ...	1,658	296,880	30,288	2,526,411	301	106,259	1,759	847,838
1877.								
January	...	...	...	...	...	...	...	...
February	1,159	197,145	9,318	664,296	32	11,072	175	84,350
March	354	63,512	7,814	629,308	1	308	64	30,848
April	237	4,033	9,874	812,552	...	...	109	52,538
May	206	35,848	10,316	822,897	...	...	101	48,682
June	144	23,976	11,194	949,108	...	...	111	53,502
Total ...	2,100	324,514	48,516	3,878,161	33	11,380	560	269,920
July	103	17,283	13,362	1,173,431	90	43,380	...	...
August	133	21,945	11,385	973,967	...	...	48	23,136
September	257	42,405	15,853	1,517,160	...	...	3	1,446
October	294	48,510	3,969	392,562	...	...	114	54,948
Total ...	787	130,143	44,569	4,057,120	90	43,380	165	79,530
Grand Total ...	4,545	751,537	123,373	10,461,692	424	161,019	2,484	1,107.288
Final Grand Total ...	74,481	12,554,121	213,624	36,037,412	59,259	5,829,080	186,446	42,401,748

), 1—*continued.*

THE DISTRICT OF—

Salem.		Coimbatore.		Malabar.		Madras.		South Indian Railway.		Total.	
Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.
250	5,776	536	29,363	375	56,767	10	2,430	...	...	1,204	99,070
653	29,957	510	27,134	34	4,480	...	...	...	...	2,031	216,256
616	24,808	316	18,940	18	2,268	7	1,701	...	...	5,123	854,542
183	12,062	68	4,959	12	1,956	32	7,452	...	...	2,434	549,189
163	9,446	54	3,738	10	1,630	13	3,159	...	...	1,328	266,385
1,865	82,049	1,484	84,134	449	67,101	62	14,742	...	...	12,120	1,985,442
372	20,439	39	2,227	...	...	...	...	...	...	1,147	167,479
213	14,295	50	2,182	...	...	9	2,187	...	...	470	52,813
621	30,756	48	2,680	...	...	2	486	...	...	1,208	137,964
488	18,239	127	7,494	...	...	...	...	...	...	1,123	124,769
974	35,684	78	3,984	...	...	...	...	...	...	2,446	311,500
1,079	43,171	312	15,919	...	...	2	486	...	...	2,490	273,752
3,747	162,584	654	34,486	...	...	13	3,159	...	...	8,884	1,068,277
1,044	37,576	597	39,865	...	...	...	...	...	...	3,478	436,267
1,014	37,486	518	32,917	...	...	...	...	...	...	3,695	494,829
1,488	52,287	281	16,357	...	...	...	...	...	...	3,391	385,380
1,716	301,480	4,636	473,180	299	16,243	...	...	...	...	7,206	974,339
5,262	428,829	6,032	562,319	299	16,243	...	...	...	...	17,770	2,290,815
10,874	673,462	8,170	680,959	748	83,344	75	17,901	...	...	38,774	5,344,534

LWAY TO THE DISTRICT OF—

Salem Tons.	Salem Ton-miles.	Coimbatore Tons.	Coimbatore Ton-miles.	Malabar Tons.	Malabar Ton-miles.	Madras Tons.	Madras Ton-miles.	S. I. Railway Tons.	S. I. Railway Ton-miles.	Total Tons.	Total Ton-miles.
44	20,768	11	6,303	...	...	81	28,431	...	...	4,040	671,137
9	3,888	...	...	...	...	89	31,239	...	...	5,172	823,465
9	4,248	...	...	...	...	39	13,338	...	...	4,920	484,146
...	...	...	...	...	...	18	6,669	...	...	7,947	743,271
11	5,192	...	...	...	...	45	15,795	...	...	12,283	1,191,240
73	34,096	11	6,303	...	...	272	95,472	...	...	34,362	3,913,259
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	10	3,510	...	...	10,694	960,373
16	6,912	...	...	...	...	30	10,530	...	...	8,279	741,418
...	...	...	...	...	...	18	6,318	...	...	10,238	875,441
...	...	...	...	...	...	28	9,828	...	...	10,651	917,255
...	...	...	...	...	...	...	...	...	...	11,449	1,026,586
16	6,912	...	...	...	...	86	30,186	...	...	51,311	4,521,073
...	...	...	...	...	...	...	...	...	...	13,555	1,234,094
...	...	...	...	...	...	32	11,232	...	...	11,598	1,030,280
...	...	...	...	...	...	24	8,424	...	...	16,137	1,569,435
...	...	...	...	...	...	...	...	...	...	4,377	496,020
...	...	...	...	...	...	56	19,656	...	...	45,667	4,329,829
89	41,008	11	6,303	...	...	414	145,314	...	...	131,340	12,764,161
59,394	9,383,457	67,468	8,458,293	10,163	698,895	564	201,292	102	11,786	671,501	115,576,084

TABLE

MADRAS

Shewing tons carried to and from terminal points and junctions

[This table is compiled from the half-year

HALF-YEAR ENDING—	Tons of Goods by the Madras Railway from—								Railway.		
	Madras.	Raichor.	Beypore.	Bellary.	Bangalore.	Coimbatore.	Arconum.	Erode.	G. I. P.	Carnatic.	South Indian
June 1872 ...	33,631	524	4,982	4,664	16,229	3,695	1,673	1,290	975	535	1,777
December „ ...	33,694	518	3,415	3,130	12,171	3,709	2,314	1,782	1,262	1,275	2,36[illegible]
June 1873 ...	38,378	799	6,374	6,450	14,079	3,778	1,586	22,660	3,630	1,348	2,62[illegible]
December „ ...	37,245	1,663	5,215	6,704	11,514	3,800	2,080	1,963	6,476	1,675	3,346
June 1874 ...	36,245	1,624	4,035	5,244	16,009	3,393	1,128	1,829	11,388	690	3,4[illegible]
December „ ...	36,567	1,017	5,167	5,330	9,453	2,935	1,715	1,340	12,233	...	5,345
June 1875 ...	38,835	1,644	4,212	8,202	9,260	3,795	1,583	2,384	9,915	...	6,515
December „ ...	42,188	10,299	3,195	10,402	7,075	2,790	1,768	1,054	2,545	...	5,775
June 1876 ...	44,344	3,533	3,417	8,060	8,396	3,880	956	2,201	14,424	...	6,0[illegible]
December „ ...	112,101	7,430	12,982	11,755	7,710	6,974	941	1,709	38,048	...	16,9[illegible]
June 1877 ...	235,628	2,892	60,727	9,844	8,761	5,179	438	2,320	80,853	...	14,77[illegible]
December „ ...	292,403	801	30,294	8,969	7,169	5,088	376	1,982	48,917	...	21,[illegible]
June 1878 ...	73,109	639	15,522	7,354	8,750	8,919	422	1,485	11,997	...	18,[illegible]
mber „ ...	63,325	634	4,334	8,975	10,066	7,279	848	1,639	10,229	...	8,[illegible]

To. 2.

AILWAY.

ıring a period of fourteen half-years from June 1872 to Dec. 1878.

ıturns of outward and inward Traffic.|

Tons of Goods by the Madras Railway to —										
								Railway.		
Madras.	Raichor.	Beypore.	Bellary.	Bangalore.	Coimbatore.	Arconum.	Erode.	G. I. P.	Carnatic.	South Indian.
57,002	4,416	26,260	3,389	12,184	6,578	1,136	2,370	5,927	917	6,435
59,500	2,656	24,108	2,544	12,350	8,660	1,211	2,593	3,647	935	7,245
52,031	1,305	25,439	4,362	12,625	7,617	832	3,800	23,767	1,191	8,892
52,352	1,983	23,081	4,252	14,058	7,452	1,316	4,794	3,291	1,266	7,412
48,065	1,321	13,477	4,448	12,513	5,724	1,314	2,639	3,721	1,377	9,416
52,182	1,620	22,595	4,439	13,946	7,848	1,020	2,926	2,527	...	12,169
47,808	1,234	27,061	6,237	13,689	8,152	1,195	3,161	3,841	...	11,903
57,085	3,058	18,148	6,159	14,507	7,283	1,345	3,298	272	...	11,992
44,431	2,237	10,183	11,291	20,729	6,122	985	1,897	4,507	...	14,600
47,821	1,750	10,060	38,258	53,483	8,414	1,753	2,929	5,753	...	14,717
39,066	799	8,280	9,844	89,554	17,416	1,361	7,337	4,251	...	15,481½
35,645	1,722	4,468	53,418	104,360	18,345	1,590	7,725	5,169	...	12,432
51,243	1,041	6,581	19,628	46,651	9,445	9,978	2,631	4,992	...	11,611
100,842	2.287	10,567	17,473	31,566	9,671	1,511	2,403	5,441	...	

TABLE No. 3.

MADRAS RAILWAY.

Shewing the weekly earning from merchandise during a period of four years, 1875-1878.

[This table is compiled from the audited weekly return of Traffic where ton-miles are not given information is wanting.]
[The figures for ton-miles include merchandise, Harbour Material and Railway Material, exclusive of coal.]

1875.			1876.			1877.				1878.			
Period ending—		Rupees.	Period ending—		Rupees.	Period ending—		Ton-miles.	Rupees.	Period ending—		Ton-miles.	Rupees.
January ...	2	18,668	January...	1	1,670	January...	6	...	1,30,528	January...	5	1,237,518	60,215
	9	71,060		8	70,456		13	...	1,26,303		12	1,644,065	78,713
	16	54,817		15	60,408		20	...	1,39,159		19	1,380,961	[illegible]
	23	54,826		22	60,233		27	...	1,29,108		26	1,395,379	[illegible]
	30	65,466		29	63,393		31	...	79,930		31	1,155,532	...
February ...	6	69,627		31	17,618	February	3	...	70,168	February	2	437,031	[illegible]
	13	70,930	February	5	53,950		10	...	1,19,512		9	1,339,054	66,922
	20	71,100		12	55,149		17	...	1,33,246		16	1,690,186	79,936
	27	73,670		19	56,603		24	...	1,41,672		23	1,648,506	[illegible]
	28	...		26	70,154		28	...	67,701		28	1,073,753	[illegible]
March ...	6	63,883		29	25,986	March ...	3	...	68,608	March ...	2	457,459	22,596
	13	70,514	March ...	4	41,145		10	...	1,46,389		9	1,455,181	69,224
	20	72,883		11	67,039		17	...	1,44,133		16	1,417,690	70,275
	27	60,562		18	73,673		24	...	1,38,537		23	1,443,610	70,606
	31	40,632		25	64,570		31	...	1,41,475		30	1,782,832	83,910
April ...	3	32,702		31	47,414	April ...	7	...	1,49,703		31	*Nil.*	*Nil.*
	10	71,177	April ...	1	10,510		14	...	1,44,042	April ...	6	1,271,812	64,545
	17	72,584		8	59,508		21	...	1,48,459		13	1,311,939	80,072
	24	77,206		15	68,787		28	...	1,44,198		20	1,162,887	47,831
	30	56,933		22	61,884		30	...	28,570		27	1,356,604	62,805
May ...	1	12,587		29	59,616	May ...	5	...	1,06,076		30	479,775	20,454
	8	70,679		30	...		12	...	1,59,364	May ...	4	743,565	40,852
	15	77,663	May ...	6	67,870		19	...	1,23,257		11	1,153,125	58,523
	22	83,869		13	64,890		26	...	1,42,075		18	1,134,524	62,003
	29	76,781		20	65,633		31	...	90,150		25	1,444,001	73,551
	31	13,437		27	64,397	June ...	2	...	53,144		31	1,367,546	[illegible]
June ...	5	63,880		31	37,050		9	...	1,47,350	June ...	1	276,374	13,413
	12	78,883	June ...	3	31,121		16	...	1,47,918		8	1,572,179	75,734
	19	83,944		10	64,239		23	...	1,25,242		15	1,568,530	[illegible]
	26	88,147		17	66,041		30	...	1,54,085		22	1,513,387	[illegible]
	30	52,978		24	80,147	July ...	7	...	1,49,106		29	1,624,047	85,341
July ...	3	37,741		30	59,634		14	...	1,38,472		30	*Nil.*	...
	10	80,406	July ...	1	11,168		21	...	1,67,759	July ...	6	1,547,073	[illegible]
	17	74,896		8	82,068		28	...	1,62,089		13	1,547,487	77,041
	24	81,443		15	84,817		31	1,151,404	52,367		20	1,257,026	[illegible]
	31	80,529		...	...	August ...	4	2,489,308	1,04,657		27	1,309,660	[illegible]
August ...	7	82,856		...	...		11	3,784,036	1,66,351		31	766,876	[illegible]
	14	81,032		...	...		18	3,913,860	1,65,043	August ...	3	631,785	[illegible]
	21	75,900	August ...	19	77,800		25	3,711,827	1,58,915		10	1,579,289	[illegible]
	28	72,697		26	69,285		31	2,953,927	1,26,073		17	1,308,518	[illegible]
	31	27,534		31	53,020	September	1	959,316	39,254		24	1,201,488	[illegible]
September ...	4	42,223	September	2	22,922		8	3,911,958	1,64,334		31	1,127,608	[illegible]
	11	60,688		9	69,143		15	3,534,018	1,54,723	September	7	922,441	[illegible]
	18	61,942		16	87,739		22	3,372,438	1,46,400		14	1,267,493	[illegible]
	25	67,956		23	85,405		29	3,395,475	1,52,457		21	1,244,644	[illegible]
	30	49,108		30	77,970		30	...	...		28	1,312,278	[illegible]
October ...	2	19,578	October...	7	83,059	October ...	6	2,713,399	1,25,255		30	212,538	[illegible]
	9	65,037		14	91,306		13	2,943,231	1,30,860	October...	5	909,456	[illegible]
	16	69,388		21	1,10,795		20	2,429,549	1,08,023		12	1,236,950	[illegible]
	23	74,740		28	1,07,307		27	2,014,040	94,061		19	1,468,692	[illegible]
	30	62,202		31	1,50,361		31	1,190,754	74,722		26	1,247,049	[illegible]
November ...	6	63,108	November	4	71,901	November	3	1,105,972	50,220		31	862,435	[illegible]
	13	75,199		11	1,07,279		10	2,057,963	96,231	November	2	357,441	[illegible]
	20	71,170		18	1,26,062		17	2,339,073	1,06,831		9	1,193,158	[illegible]
	27	72,190		25	1,08,345		24	2,811,167	1,26,321		16	1,252,341	[illegible]
	30	24,062		30	65,725		30	2,214,724	1,00,458		23	1,168,905	[illegible]
December ...	4	36,266	December	2	41,440	December	1	345,385	16,060		30	1,239,846	[illegible]
	11	70,299		9	1,33,476		8	1,668,808	79,622	December	7	1,183,605	[illegible]
	18	59,106		16	1,34,261		15	1,594,370	78,097		14	1,093,559	[illegible]
	25	65,999		23	1,55,117		22	1,780,257	86,416		21	1,253,054	[illegible]
	31	60,490		30	1,45,493		29	1,593,644	77,519		28	1,322,354	[illegible]
	...	...		31	...		31	408,777	19,015		31	697,152	[illegible]

TABLE No. 4.

MADRAS RAILWAY.

Ames of Stations passed by the trains.	Number of trains which, on one day in each Month, passed by the Stations named in the margin.													
	1876.					1877.								
	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.
uth-West Line.														
namapett	...	15	17	20	23	23	21	26	19	22	25	25	25	24	24
ot	...	15	14	14	16	16	14	15	17	16	17	16	17	17	18
riattum	...	12	12	14	16	14	14	15	15	14	18	17	16	17	16
ator	...	7	10	11	10	9	8	10	8	8	9	8	8	9	10
varoy Hills	...	10	15	15	12	13	12	9	12	10	11	12	12	13	12
kerrydroog	...	9	16	15	12	12	12	12	10	10	10	12	12	16	14
nasby	...	7	10	11	12	10	12	10	10	10	10	10	8	11	10
ddikurry	...	4	8	10	12	12	12	12	11	10	10	12	12	12	12
ranore	...	4	6	6	8	11	10	8	8	8	8	8	8	8	8
ilgiri Branch.														
mbator	...	11	10	8	8	8	8	8	10	10	9	10	10	11	10
ramody	...	6	4	4	2	2	2	4	4	4	4	4	4	7	4
ngalore Branch.														
ar Road	...	13	19	13	12	12	11	14	12	13	13	14	14	15	14
rth-West Branch.														
tany	...	10	12	15	17	18	14	15	14	14	14	14	14	14	14
lypally	...	8	12	15	16	15	15	15	15	15	15	15	15	17	15
ntimettah	...	8	10	13	13	13	12	12	12	12	12	12	13	14	12
dipuram	...	8	9	11	11	11	9	10	10	9	10	10	11	14	10
takachewon	...	9	10	11	13	11	10	9	11	12	10	13	12	12	10
ncheela	...	8	9	9	11	11	12	10	11	11	11	13	11	12	13
tmari	...	8	8	9	10	11	10	10	11	10	11	13	12	13	13
ellary Branch.														
apore	...	8	10	13	12	8	9	9	10	9	18	14	12	13	12
Total ...	...	180	221	237	46	240	227	233	230	227	245	252	246	269	251
Mean ...	...	9·0	11·1	11·8	12·3	12·0	1·3	11·6	11·5	11·3	12·2	12·6	12·3	13·5	12·

TABLE No. 5.

MADRAS RAILWAY.

[This table is compiled from Table A of the Review of Revenue Account].

	Capital in Pounds Sterling expended on open mileage, inclusive of rolling stock.	Rupees.			Percentage on column 1.	Mileage.				Lifted.		Ton-mileage.			Foreign Stock on Home Line.			Home Stock on Foreign Line.		
		Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings.	Tons.	Passengers.	Coaching.	Goods.	Total Coaching and Goods.	Vehicles. Coaching.	Vehicles. Goods.	Locomotives.	Vehicles. Coaching.	Vehicles. Goods.	Locomotives.
	£																			
ecember 1872	9,202,691	3,039,464	1,596,799	1,442,665	1·3	832·	...	832·	81·75	186,212	1,242,074	49,776,196	110,217,252	159,993,448	...	...	...	...	...	...
une 1873	9,463,985	3,765,308	1,814,165	1,951,143	1·75	833·5	2·25	835·75	83·5	210,735	1,391,762	54,419,307	137,922,504	192,341,811	...	...	...	...	...	...
ecember „	9,644,244	3,118,042	2,105,213	1,012,829	0·91	854·25	2·25	856·50	82·0	196,003	1,352,039	53,707,401	114,290,309	167,997,710	...	...	...	...	...	...
une 1874	9,684,401	2,957,671	1,842,260	1,115,411	1·00	853·25	3·5	856·75	82⅞	175,224	1,370,390	55,975,492	107,261,283	163,236,775	...	...	...	...	...	...
ecember „	9,710,168	2,948,829	1,977,273	971,556	0·91	853⅜	3⅜	856¾	89½	197,582	1,406,586	53,128,763	114,902,871	168,031,634	...	...	...	...	...	...
une 1875	9,726,772	3,218,512	2,209,732	1,008,780	0·95	854 53/80	3 7/16	858 1/10	91 3/40	199,567	1,435,941	57,066,408	131,905,984	188,972,392	...	...	...	...	...	...
ecember „	9,745,936	3,211,240	2,308,870	902,370	0·849	854 53/80	3 35/80	858 1/10	91 11/80	215,756	1,303,357	57,985,636	131,880,774	189,866,410	...	...	...	...	...	...
une 1876	9,755,890	3,087,397	2,246,040	841,357	0·79	854 53/80	3 7/16	858 1/10	90 37/80	248,128	1,409,933	61,686,792	117,405,128	179,091,920	...	...	...	...	...	...
ecember „	9,779,215	4,026,376	2,333,738	1,692,638	1·58	854 53/80	3 7/16	858 1/10	90 37/80	366,910	1,388,195	62,660,661	178,192,082	240,852,743	...	...	...	...	...	...
une 1877	9,832,238	5,062,613	2,721,757	2,340,856	2·18	845 18/80	12·⅞	858 1/10	94	508,877	1,303,421	65,987,239	246,361,583	312,348,822	394	12,759	...	467	4,307	...
ecember „	9,965,962	4,972,682	3,225,646	1,747,036	1·60	816 18/80	42·33/80	858 48/80	94 48/80	481,789	1,325,078	73,218,843	248,140,924	321,359,767	370	8,878	...	323	6,057	...
une 1878	10,057,514	3,425,765	2,575,667	850,098	0·77	814·76	42·41	857·17	93·87	262,406	1,360,635	71,006,237	139,108,772	210,115,009	189	3,352	...	354	5,699	...
ecember* „	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE No. 6.

SOUTH INDIAN RAILWAY.

Shewing the food-grain traffic during the fifteen months, August 1876 to October 1877.

This table is compiled from information supplied by the Consulting Engineer to the Government of India (Madras.)

Tons booked from—	To the District of—								Grand Total.
	Tanjore.	Trichinopoly.	Madura.	Tinnevelly.	Coimbatore.	Chingleput.	South Arcot.	The Madras Railway.	
August 1876.									
Negapatam	189	68	119	5	1	...	...	131	513
Tuticorin	...	...	21	40	...	...	...	...	61
Tanjore District	943	3	8	17	18	...	...	591	1,580
Trichinopoly District ...	105	4	28	45	336	...	...	176	694
Tinnevelly „ ...	...	...	1	88	...	...	...	...	89
Madras	...	...	...	...	...	...	...	...	...
Cuddalore	...	...	...	...	...	...	...	...	162
Madras Railway	6	65	9	...	15	67	...	...	162
Other Stations	39	25	4	514	116	...	...	303	1,001
Total for August 1876, tons ...	1,282	165	190	709	486	67	...	1,201	4,100
„ „ ton-miles	48,887	12,549	25,644	53,271	17,356	1,234	...	121,907	280,848
September 1876.									
Negapatam	359	66	339	39	7	...	...	216	1,026
Tuticorin	...	...	15	146	...	...	...	...	161
Tanjore District	1,103	35	6	32	132	...	...	672	1,980
Trichinopoly District ...	72	1	123	108	513	...	...	418	1,235
Tinnevelly „ ...	...	...	20	76	...	...	...	...	96
Madras	...	...	...	...	...	...	...	...	...
Cuddalore	...	...	...	...	...	...	...	...	...
Madras Railway	18	20	8	18	4	151	...	...	219
Other Stations	30	107	35	460	270	...	...	451	1,353
Total for Sept. 1876, tons ...	1,582	229	546	879	926	151	...	1,757	6,070
„ „ ton-miles	55,656	12,939	69,034	79,099	53,249	2,868	...	196,800	469,645
October 1876.									
Negapatam	247	125	147	27	4	...	...	223	773
Tuticorin	...	...	34	219	...	...	...	...	253
Tanjore District	2,439	20	48	45	52	...	...	1,425	4,029
Trichinopoly District ...	64	16	113	87	476	...	...	1,376	2,132
Tinnevelly „ ...	...	3	57	139	...	...	...	49	248
Madras	...	...	...	...	...	...	...	...	...
Cuddalore	...	...	...	...	...	...	...	...	...
Madras Railway	...	26	...	...	1	149	...	...	176
Other Stations	7	240	12	192	221	1	...	2,005	2,678
Total for October 1876, tons	2,757	430	411	709	754	150	...	5,078	10,289
„ „ ton-miles	105,960	32,469	45,113	55,869	38,269	2,839	...	534,871	815,390
November 1876.									
Negapatam	196	126	182	7	24	...	...	212	747
Tuticorin	...	...	36	183	...	...	...	...	219
Tanjore District	1,678	487	543	2	1	...	...	623	3,334
Trichinopoly District ...	37	20	165	39	95	...	...	729	1,085
Tinnevelly „ ...	...	6	470	489	...	...	...	32	997
Madras	...	...	...	...	...	...	...	...	...
Cuddalore	...	...	...	...	...	...	...	...	...
Madras Railway	3	6	29	...	26	96	...	...	160
Other Stations	22	101	101	174	55	...	...	614	1,067
Total for November 1876, tons	1,936	746	1,526	894	201	96	...	2,210	7,609
„ „ ton-miles	65,627	47,793	160,117	53,871	11,554	1,828	...	246,159	[illegible]

TABLE No. 6—*continued.*

SOUTH INDIAN RAILWAY.

Tons booked from—	To the District of—								Grand Total.
	Tanjore.	Trichinopoly.	Madura.	Tinnevelly.	Coimbatore.	Chingleput.	South Arcot.	The Madras Railway.	
December 1876.									
1. Negapatam	552	267	870	60	77	...	...	6	1,83[illegible]
2. Tuticorin	...	...	340	534	...	...	...	...	87[illegible]
3. Tanjore District	250	738	573	43	179	...	...	235	2,018
4. Trichinopoly District ...	18	20	147	12	197	...	...	731	1,125
5. Tinnevelly „ ...	...	40	1,018	586	...	...	...	...	1,644
6. Madras	...	...	...	...	...	...	...	...	...
7. Cuddalore	...	...	...	...	...	...	...	...	...
8. Madras Railway	131	213	204	1	621	24	...	...	1194
9. Other Stations	15	207	238	64	2	3	...	309	838
Total for December 1876, tons	966	1,485	3,390	1,300	1,076	27	...	1,281	9,525
„ „ ton-miles	50,225	100,714	349,919	94,705	63,079	494	...	100,458	759,5[illegible]
January 1877.									
1. Negapatam	198	491	898	10	587	...	...	...	2,3[illegible]
2. Tuticorin	...	...	632	708	...	...	...	...	1,34[illegible]
3. Tanjore District	89	709	821	...	281	...	...	...	2,21[illegible]
4 Trichinopoly District ...	9	1	151	3	948	...	...	...	1,[illegible]
5. Tinnevelly „ ...	...	...	392	35	...	...	...	...	4[illegible]
6. Madras	...	...	...	...	...	153	80	...	[illegible]
7. Cuddalore	...	...	...	...	...	...	...	...	...
8. Madras Railway	4	66	51	3	643	125	...	...	[illegible]
9. Other Stations	4	19	185	139	180	149	...	...	[illegible]
Total for January 1877, tons	304	1,286	3,130	898	2,639	427	80	847	[illegible]
„ „ ton-miles	12,262	86,085	317,064	45,354	227,774	19,088	9,691	98,968	916,[illegible]
February 1877.									
1. Negapatam	365	579	2,144	47	155	...	...	434	[illegible]
2. Tuticorin	...	...	311	1,367	...	...	...	...	[illegible]
3. Tanjore District	658	965	1,317	43	195	...	...	91	[illegible]
4. Trichinopoly District ...	16	3	124	41	110	...	...	800	[illegible]
5. Tinneveley „ ...	...	...	205	128	...	...	...	4	[illegible]
6. Madras	...	...	...	...	...	192	23	...	[illegible]
7. Cuddalore	...	...	...	...	...	38	140	...	[illegible]
8. Madras Railway	...	68	208	16	1,403	1	...	...	[illegible]
9. Other Stations	12	21	100	110	84	128	...	102	[illegible]
Total for February 1877, tons	1,051	1,636	4,409	1,752	1,947	359	233	931	[illegible]
„ „ ton-miles	38,398	113,222	624,817	118,923	109,769	21,618	7,225	114,021	1,1[illegible]
March 1877.									
1. Negapatam	204	708	4,191	114	441	...	...	1,351	[illegible]
2. Tuticorin	...	...	289	3,026	...	...	...	...	[illegible]
3. Tanjore District	888	1,179	1,484	27	272	...	...	270	[illegible]
4. Trichinopoly District ...	13	166	122	37	126	...	...	106	[illegible]
5. Tinnevelly „ ...	...	...	79	61	...	...	...	2	[illegible]
6. Madras	...	...	...	...	...	234	236	...	[illegible]
7. Cuddalore	...	...	...	...	...	21	571	...	[illegible]
8. Madras Railway	4	184	157	8	896	...	...	...	[illegible]
9. Other Stations	3	11	90	42	36	96	13	65	[illegible]
Total for March 1877, tons ...	1,112	2,248	6,412	3,315	1,771	351	820	1,794	[illegible]
„ ton-miles	39,443	147,899	970,852	215,057	144,737	19,043	35,954	273,258	1,8[illegible]

TABLE No. 6—*continued.*

SOUTH INDIAN RAILWAY.

Tons booked from—	To the District of—								Grand Total.
	Tanjor.	Trichinopoly.	Madras.	Tinnevelly.	Coimbator.	Chingalput.	South Arcot.	The Madras Railway.	
April 1877.									
Negapatam	121	766	4,165	50	728	...	...	860	6,690
Tuticorin	...	...	1,027	3,405	...	...	...	...	4,432
Tanjore District	586	1,832	2,027	13	300	...	...	252	5,010
Trichinopoly District ...	28	3	118	7	29	...	...	9	194
Tinnevelly „ ...	...	...	182	59	...	...	...	2	243
Madras	...	...	...	...	...	190	109	...	299
Cuddalore	...	...	...	...	...	14	38	...	52
Madras Railway	16	26	165	2	1,437	...	...	...	1,646
Other Stations	1	7	117	40	101	65	24	23	378
Total for April 1877, tons ...	752	2,634	7,801	3,576	2,595	269	171	1,146	18,944
„ „ ton-miles	28,653	148,816	1,129,902	231,128	193,874	13,897	12,669	178,345	1,937,284
May 1877.									
Negapatam	347	701	4,269	1,208	1,160	...	...	2,073	9,758
Tuticorin	...	...	1,643	1,521	...	...	...	...	3,164
Tanjore District	511	2,195	2,005	5	261	...	...	265	5,242
Trichinopoly District ...	2	22	58	17	47	...	...	51	197
Tinnevelly „ ...	...	...	324	99	...	...	...	...	423
Madras	...	...	...	...	...	271	83	...	354
Cuddalore	...	...	...	...	...	331	227	...	558
Madras Railway	...	5	8	1	1,200	...	...	...	1,214
Other Stations	1	3	58	30	52	171	3	81	399
Total for May 1877, tons ...	861	2,926	8,365	2,881	2,720	773	313	2,470	21,309
„ „ ton-miles	35,101	205,755	1,102,588	123,692	291,448	61,916	13,266	374,434	2,208,200
June 1877.									
Negapatam	226	636	2,483	53	966	...	...	1,561	5,925
Tuticorin	...	...	2,479	2,803	...	...	...	...	5,282
Tanjore District	323	1,811	2,516	15	316	...	...	552	5,533
Trichinopoly District ...	11	13	50	34	74	1	...	49	232
Tinnevelly „ ...	...	...	148	30	...	...	...	...	178
Madras	...	...	...	...	...	519	89	...	608
Cuddalore	...	...	...	...	...	227	28	...	255
Madras Railway	...	13	3	...	394	3	...	...	413
Other Stations	6	4	89	95	189	41	1	105	530
Total for June 1877, tons ...	566	2,477	7,768	3,030	1,939	791	118	2,267	18,956
„ „ ton miles	22,550	184,933	1,045,277	199,698	196,059	50,673	9,772	353,926	2,062,888
July 1877.									
Negapatam	224	1,865	2,678	69	1,060	...	...	2,641	8,537
Tuticorin	...	41	4,093	2,393	81	...	...	69	6,677
Tanjore District	188	2,813	2,237	7	246	4	...	630	6,125
Trichinopoly District ...	7	11	37	20	1,066	...	...	725	1,866
Tinnevelly „ ...	...	...	451	87	48	...	...	44	630
Madras	7	4	32	...	57	748	336	...	1,184
Cuddalore	...	...	...	...	...	5	22	...	27
Madras Railway	1	10	1	1	419	2	...	...	434
Other Stations	...	15	427	56	69	28	80	216	891
Total for July 1877, tons ...	427	4,759	9,956	2,633	3,046	787	438	4,325	26,371
„ „ ton-miles	29,100	379,563	1,221,181	183,303	315,852	33,328	34,318	646,668	2,843,313

TABLE No. 6—*concluded.*

SOUTH INDIAN RAILWAY.

Tons booked from—	To the District of—								Grand Total.
	Tanjor.	Trichinopoly.	Madras.	Tinnevelly.	Coimbator.	Chingalput.	South Arcot.	The Madras Railway.	
August 1877.									
1. Negapatam	328	1,437	2,897	95	1,530	1	...	2,431	8,719
2. Tuticorin	6	17	4,806	3,399	61	...	...	44	8,333
3. Tanjore District	159	2,820	1,745	1	327	8	...	838	5,898
4. Trichinopoly District ...	33	6	58	4	655	...	...	491	1,247
5. Tinnevelly „ ...	...	1	402	21	14	...	...	2	440
6. Madras	2	4	...	...	8	1,183	1,300	...	2,497
7. Cuddalore	...	...	...	...	...	2	24	...	26
8. Madras Railway	...	13	...	1	451	...	...	...	465
9. Other Stations	38	44	212	32	105	21	14	265	731
Total for August 1877, tons ...	566	4,342	10,120	3,553	3,151	1,215	1,338	4,071	28,356
„ „ ton-miles	29,905	304,712	1,265,144	230,709	326,968	50,583	122,923	589,275	2,920,219
September 1877.									
1. Negapatam	222	2,464	5,083	75	1,282	1	...	2,664	11,791
2. Tuticorin	...	5	2,032	2,540	...	...	...	...	4,577
3. Tanjore District	23	1,967	1,182	1	108	...	...	337	3,618
4. Trichinopoly District ...	16	30	190	8	474	...	...	599	1,317
5. Tinnevelly „ ...	...	12	473	213	58	...	...	4	760
6. Madras	...	...	6	...	...	857	1,567	...	2,430
7. Cuddalore	...	...	...	...	...	3	41	...	44
8. Madras Railway	...	2	6	...	890	...	...	...	898
9. Other Stations	18	21	491	57	129	24	24	331	1,095
Total for Sept. 1877, tons ...	279	4,501	9,463	2,894	2,941	885	1,632	3,935	26,530
„ „ ton-miles	16,767	337,764	1,225,891	188,159	167,337	37,236	170,689	557,991	2,701,834
October 1877.									
1. Negapatam	409	1,262	4,622	196	461	...	...	1,313	8,263
2. Tuticorin	...	...	2,489	3,616	...	...	...	...	6,105
3. Tanjore District	60	830	1,736	12	17	...	...	337	2,992
4. Trichinopoly District ...	13	31	527	17	120	...	...	599	1,307
5. Tinnevelly „ ...	...	...	1,401	541	5	...	...	4	1,951
6. Madras	...	...	...	...	...	576	311	...	887
7. Cuddalore	...	...	...	...	...	...	...	...	...
8. Madras Railway	...	2	16	...	896	...	...	...	914
9. Other Stations	25	136	729	162	171	57	130	326	1,736
Total for Oct. 1877, tons ...	507	2,261	11,520	4,544	1,670	633	441	2,579	24,155
„ „ ton-miles	27,361	164,082	1,360,113	298,483	113,249	27,657	29,950	331,686	2,352,581

(ABSTRACT OF TABLE NO. 6.)

SOUTH INDIAN RAILWAY.

	Tons lifted from the nine places mentioned in Table 6 and sent to the District of—																Grand Total.	
	Tanjor.		Trichinopoly.		Madura.		Tinnevelly.		Coimbator.		Chingalput.		South Arcot.		Madras Railway.			
	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.
1876.																		
August	1,282	4,887	165	12,549	190	25,644	709	53,271	486	17,356	67	1,234	...	...	1,201	121,907	4,100	236,848
September	1,582	55,656	229	12,939	546	69,034	879	79,099	926	53,249	151	2,868	...	...	1,757	196,800	6,070	469,645
October	2,757	1,05,960	430	32,469	411	45,113	709	55,869	754	38,269	150	2,839	...	...	5,078	534,871	10,289	815,390
November	1,936	65,627	746	47,793	1,526	160,117	894	53,871	21	11,554	96	1,828	...	...	2,210	246,159	7,609	586,949
December	966	50,225	1,485	100,714	3,390	349,919	1,300	94,705	1,076	63,079	27	494	...	...	1,281	100,458	9,525	759,594
Total ...	8,523	282,355	3,055	206,464	6,063	649,827	4,491	336,815	3,443	183,507	491	9,263	...	...	11,527	1,200,195	37,593	2,868,426
1877.																		
January	304	12,262	1,286	86,085	3,130	317,064	898	45,354	2,639	227,774	427	19,088	83	9,691	847	98,968	9,614	816,286
February	1,051	38,398	1,636	113,222	4,409	624,817	1,752	118,923	1,947	109,769	359	21,618	233	7,225	931	114,021	12,318	1,147,993
March	1,112	39,443	2,248	147,899	6,412	970,852	3,315	215,057	1,771	144,737	351	19,043	820	35,954	1,794	273,258	17,823	1,846,243
April	752	28,653	2,634	148,816	7,801	1,129,902	3,576	231,128	2,595	193,874	269	13,897	171	12,669	1,146	178,345	18.944	1,937,284
May	861	35,101	2,926	205,755	8,365	1,102,588	2,881	123,692	2,720	291,448	773	61,916	313	13,266	2,470	374,434	21,309	2,208,200
June	566	22,550	2,477	184,933	7,768	1,045,277	3,030	199,698	1,939	196,059	791	50,673	118	9,772	2,267	353,926	18,956	2,062,888
Total ...	4,646	176,407	13,207	886,710	37,885	5,190,500	15,452	933,852	13,611	1,163,661	2,970	186,235	1,738	88,577	9,455	1,392,952	98,964	10,018,894
July	427	29,100	4,759	379,563	9,956	1,221,181	2,633	183,303	3,046	315,852	787	33,328	438	34,318	4,325	646,668	26,371	2,843,313
August	566	29,905	4,342	304,712	10,120	1,265,144	3,553	230,709	3,151	326,968	1,215	50,583	1,338	122,923	4,071	589,275	28,356	2,920,219
September	279	16,767	4,501	337,764	9,463	1,225,891	2,894	188,159	2,941	167,337	885	37,236	1,632	170,689	3,935	557,991	26,530	2,701,834
October	507	27,361	2,261	164,082	11,520	1,360,113	4,544	298,483	1,670	113,249	633	27,657	441	29,950	2,579	331,686	24,155	2,352,581
Total ...	1,779	103,133	15,863	1,186,121	41,059	5,072,329	13,624	900,654	10,808	923,406	3,520	148,804	3,849	357,880	14,910	2,125,620	105,412	10,817,947
Final Grand Total ...	14,948	561,895	32,125	2,279,295	85,007	10,912,656	33,567	2,171,321	27,862	2,270,574	6,981	344,302	5,587	446,457	35,892	4,718,767	241,969	23,705,267

TABLE No. 8.

SOUTH INDIAN RAILWAY.

Table of Sections of the South Indian Railway.	Number of trains which passed over the Sections named in the margin in the Month of— 1876. August.	1876. September.	1876. October.	1876. November.	1876. December.	1877. January.	1877. February.	1877. March.	1877. April.	1877. May.	1877. June.	1877. July.	1877. August.	1877. September.	1877. October.	Length of Section in miles.
Negapatam to Trichinopoly Junction	147	168	132	153	213	194	177	255	254	299	331	307	333	319	289	79
Trichinopoly Junction to Madura	131	116	112	99	130	121	173	217	246	237	224	164	195	225	256	96
Madura to Tuticorin	87	83	107	90	88	91	81	118	128	127	152	159	193	168	198	98
Tinnevelly to Maniachi	62	67	62	60	62	62	57	62	60	62	60	62	64	60	62	18½
Tuticorin to Tinnevelly	...	...	...	...	...	3	3	2	...	...	...	62	62	60	62	36¼
Madura to Tinnevelly	12	4	...	6	20	8	...	...	...	...	...	...	...	...	7	98¼
Shiyali to Tanjore	...	...	...	...	...	...	...	...	...	...	...	99	124	124	124	52
Trichinopoly Fort to Erode	216	250	315	233	263	222	188	232	213	281	298	345	379	287	198	89
Madras to Cuddalore	...	...	...	...	...	190	133	156	182	205	221	...	...	...	...	127½
" to Porto Novo	...	...	...	...	...	...	...	...	...	...	...	282	370	389	204	145
" to Tindivanam	...	60	73	129	134	...	...	...	...	...	...	...	...	...	...	75¼
" to Mayaveram	...	...	...	...	...	...	34	...	...	...	...	...	...	...	...	...
Tanjore to Mayaveram	...	...	...	...	...	...	...	64	62	73	90	...	...	...	...	38
Arconum to Conjeveram	62	60	31	60	64	64	56	66	60	87	60	62	64	60	62	19
Total number of Trains per Month	717	804	832	830	974	953	902	1,173	1,205	1,371	1,436	1,542	1,784	1,692	1,462	...
" " Day	23·1	26·8	26·8	27·6	31·4	30·74	32·2	37·84	40·1	44·2	47·87	49·7	57·5	56·4	47·1	...
" " Day per Section	3·3	3·35	3·8	3·42	3·9	3·4	3·6	4·73	5·01	5·5	5·98	5·5	6·4	6·2	4·7	...

SOUTH INDIAN RAILWAY.

Shewing tons of Goods carried from and to terminal points and junctions during a period of thirteen half-years, December 1872 to December 1878.

Half-year ending—	Tons of Goods sent by the South Indian Railway from—											Tons of Goods sent by the South Indian Railway to—										
	Madras.	Negapatam.	Tuticorin.	Tinnevelly.	Conjeveram.	Arconum.	Erode.	Cuddalore.	Trichinopoly.	Tanjore.	Madras Railway.	Madras.	Negapatam.	Tuticorin.	Tinnevelly.	Conjeveram.	Arconum.	Erode.	Cuddalore.	Trichinopoly.	Tanjore.	Madras Railway.
December 1872	...	9,653	...	...	1,245	1,006	8,430	...	4,588	9,478	...	...	15,524	...	...	1,000	1,297	3,519	...	8,052	2,997	...
June 1873	...	9,376	...	...	1,330	1,410	7,778	...	5,318	7,393	...	...	14,598	...	...	...	...	5,175	...	6,433	3,146	...
December „	...	10,421	...	...	...	...	349	...	8,095	4,517	9,722	...	17,808	...	...	...	...	148	...	3,462	8,434	...
June 1874	...	6,614	...	...	...	...	729	...	3,802	9,873	11,802	...	19,808	...	...	...	...	131	...	8,725	2,677	...
December „	...	10,250	...	...	7	138	509	...	2,556	13,718	17,408	...	19,585	...	...	1,734	7	229	...	11,795	3,373	...
June 1875	...	7,995	...	...	47	165	624	...	4,210	10,054	17,400	...	21,462	...	...	3,205	23	353	...	9,616	3,160	...
December „	...	8,887	...	15	26	90	1,175	...	5,999	7,152	17,130	...	19,780	...	...	2,087	26	381	...	10,944	4,318	...
June 1876	...	8,371	3,371	847	8	379	692	...	6,562	8,649	18,907	...	21,914	3,737	3,289	1,705	11	307	...	7,935	5,019	...
December „	...	14,696	9,246	5,220	19	36	569	...	6,371	15,438	50,417	...	17,318	4,220	5,706	1,194	15	1,319	...	16,827	7,293	2,335
June 1877	4,846	41,203	27,289	3,859	147	387	517	2,783	8,858	5,837	14,520	14,481	8,067	6,028	5,040	797	128	2,742	1,540	18,652	4,292	14,083
December „	9,716	53,965	39,200	7,158	238	287	543	611	11,015	6,969	9,905	23,714	3,793	6,990	4,151	1,038	125	2,754	1,409	25,664	4,523	20,873
June 1878	3,908	22,800	14,407	5,315	321	614	9,560	950	10,842	19,818	...	43,884	14,843	6,246	7,382	613	372	20,342	1,244	14,828	4,716	...
December „	5,135	26,436	9,316	5,161	741	1,081	15,154	1,775	12,459	15,071	...	55,845	16,939	6,720	8,980	1,075	1,053	9,172	979	17,739	5,536	...

'he figures for the half-years ending December 1872, June 1873, June 1878 and December 1878, have been obtained from the half-yearly printed Statements; those for the other half-years from the printed quarterly Statements.

TABLE

SOUTH INDIAN

Shewing the number of tons received at and

TONS DELIVERED IN THE

	December 1872.		June 1873.		December 1873.		June 1874.		December 1874	
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.
	tons.	tons.			tons.	tons.			tons.	tons.
Madras	...	...	...	...	...	...	...	...	...	...
Negapatam	9,653·3	15523·9	9,376	14,598	10,421	17,808	6,614	19,808	10,250	19,5[illegible]
Tuticorin	...	...	...	...	...	...	...	...	...	...
Tinnevelly	...	...	...	...	...	...	...	...	...	...
Conjeveram	1,245	1,000	1,330	?	...	...	...	...	7	1,73[illegible]
Arconum	1,006	1,297	1,410	?	...	...	...	...	138	7[illegible]
Erode	8,430	3,519	7,778	5,175	349	148	729	131	509	22[illegible]
Cuddalore	...	...	...	...	...	...	...	...	...	...
Trichinopoly	4,588·2	8052·0	5,318	6,433	8,095	3,462	3,802	8,725	2,556	11,79[illegible]
Tanjore	9,477·1	2997·5	7,393	3,146	4,517	8,434	9,873	2,677	13,718	3,37[illegible]
From the Madras Railway ...	...	...	...	...	...	9,722	...	11,802	...	17,4[illegible]

The figures for the half-years ending December 1872, June 1873, and June 1873 wa[illegible]

TABLE

SOUTH INDIAN

	Capital in Pounds expended on open mileage, inclusive of Rolling Stock.	Rupees.			Percentage on Column 1.	Mileage.			
		Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings
December 1872	1,408,357	408,698	201,116	207,582	1·3	168	...	168	13[illegible]
June 1873	1,408,331	639,667	267,605	372,062	2·4	...	...	...	...
December „	1,403,563	473,206	285,587	187,619	1·2	167	...	167	12[illegible]
June 1874	1,414,286	441,657	282,586	159,071	1·0	...	...	...	...
December „	1,468,326	505,197	297,371	207,826	1·3	185	...	185	15[illegible]
June 1875	1,472,157	479,384	232,748	246,636	1·6	...	...	...	...
December „	1,974,758	599,097	286,652	312,445	1·5	282·5	...	282·5	21
June 1876	2,440,359	940,034	597,026	343,008	1·3	397	...	397	[illegible]
December „	3,006,137	1,050,766	463,496	587,270	1·8	474	...	474	[illegible]
June 1877	3,513,176	1,518,949	667,068	667,068	2·3	570	...	570	[illegible]
December „	3,563,566	1,714,297	977,958	736,339	1·9	599	...	599	[illegible]
June 1878	3,710,265	1,616,138	1,089,818	526,320	1·3	604	...	604	[illegible]
December „ *	...	...	...	...	...	...	...	...	...

* Inf[illegible]

No. 10.

RAILWAY.

issued from the following Eleven Stations.

HALF-YEAR ENDING—

June 1875.		December 1875.		June 1876.		December 1876.		June 1877.		December 1877.		June 1878.	
Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.
tons.	tons.							tons.	tons.	tons.	tons.	tons.	Tons.
...	...	...	...	...	...	...	...	4,846	14,480	9,716	23,714	3,908	43,884
7,995	21,462	8,887	19,780	8,371	21,914	14,696	17,318	41,203	8,067	53,965	3,793	22,800	14,846
...	...	...	...	3,371	3,737	9,246	4,220	27,289	6,028	39,200	6,990	14,407	6,246
...	...	15	...	847	3,289	5,220	5,706	3,859	5,040	7,158	4,151	5,315	7,382
47	3,205	26	2,087	8	1,705	19	1,794	147	797	238	1,038	321	613
165	23	90	26	379	11	36	15	387	128	287	125	614	373
624	353	1,175	381	692	1,307	569	1,319	517	2,742	543	2,754	9,560	20,342
...	...	...	...	...	...	...	....	2,783	1,540	611	1,409	950	1,244
4,210	9,616	5,999	10,944	6,562	7,935	6,371	16,827	8,858	18,652	11,015	25,664	10,842	14,828
10,054	3,160	7,152	4,318	8,649	5,019	15,438	7,293	5,837	4,292	6,969	4,523	19,818	4,716
...	17399·5	...	17,130	...	18,907	2,335	30,417	14,083	14,520	20,873	9,905	...	...

obtained from a printed half-yearly Return; the rest from printed quarterly Returns.

No. 11.

RAILWAY.

Lifted.		Ton-Mileage.			Foreign Stock on Home Line.			Home Stock on Foreign Lines.		
					Vehicles.		Locomotives.	Vehicles.		Locomotives.
Tons.	Passengers No.	Coaching.	Goods.	Total Coaching and Goods.	Coaching.	Goods.		Coaching.	Goods.	
44,426	596,606	9,852,496	13,025,544	22,878,040	...	...	...	...	...	...
63,617	721,299	11,866,963	23,974,144	35,841,107	...	...	...	...	...	...
51,222	680,025	11,067,497	13,179,534	24,247,031	...	...	...	...	...	...
56,064	683,278	10,065,812	14,705,540	24,771,352	...	...	...	...	...	...
63,874	778,152	12,677,005	15,081,227	27,758,232	...	...	...	...	...	...
60,590	749,136	10,637,617	15,272,161	25,909,778	...	...	...	...	...	...
60,655	809,113	12,990,729	16,611,070	29,601,799	...	...	...	...	...	...
81,895	1,345,627	21,403,787	20,155,579	41,559,366	...	...	...	...	...	...
117,704	1,475,747	23,866,267	26,522,259	50,388,526	...	...	...	...	...	...
174,633	1,912,889	29,157,763	48,458,863	77,616,626	218	3,376	*Nil*	30	2,130	*Nil*
212,419	2,135,206	34,459,627	58,830,725	93,290,352	399	4,872	5	29	2,443	...
182,199	2,558,532	38,702,297	44,461,535	83,163,832	206	4,751	4	32	2,034	...
...	...	...	...	...	...	...	...	...	...	...

is wanting.

TABLE No. 12.

SOUTH INDIAN RAILWAY.

Shewing the weekly Earnings from merchandise during a period of four years, 1875-1878.

1875.			1876.			1877.				1878.			
Period ending—		Rs.	Period ending—		Rs.	Period ending—		Ton-miles.	Rs.	Period ending—		Ton-miles.	Rs.
			January...	8	12,643	January...	6		13,771	January...	5		17,416
				15	12,201		13		17,320		12		26,840
				22	10,865		20		18,495		19		23,581
				29	11,867		27		17,472		26		21,518
			February	5	13,618	February	3		19,425	February	2		24,327
				12	14,850		10		22,123		9		18,348
				19	16,559		17		23,775		16		23,632
				26	15,724		24		22,014		23		20,444
			March ...	4	15,579	March ...	3		21,700	March ...	2		23,279
				11	13,434		10		27,511		9		22,399
				18	13,144		17		26,726		16		24,249
				25	14,181		24		27,145		23		22,662
			April ...	1	11,483		31		31,555		30		21,021
				8	11,362	April ...	7		32,035	April ...	6		19,869
				15	11,902		14		29,567		13		19,198
				22	10,437		21		28,715		20		15,324
				29	10,216		28		28,986		27		18,336
			May ...	6	11,829	May ...	5		30,341	May ...	4		19,517
				13	10,619		12		33,460		11		18,877
				20	10,271		19		29,843		18		20,674
				27	10,770		26		32,080		25		19,869
			June ...	3	12,292	June ...	2		32,361	June ...	1		23,012
				10	10,371		9		34,439		8		24,079
				17	12,591		16		33,595		15		22,549
				24	12,523		23		33,259		22		31,217
				30	29,686		30		53,897		29		28,272
			July ...	8	10,481	July ...	7		36,344	July ...	6		26,425
				15	14,516		14		35,655		13		26,261
				22	13,317		21		41,873		20		27,426
				29	14,791		28		35,159		27		24,728
			August...	5	15,108	August ...	4		38,091		...		...
				12	12,549		11		40,926	August ...	3		21,739
				19	14,235		18		37,648		10		25,891
				26	14,314		25		38,527		17		24,471
			September	2	13,327	September	1		38,096		24		24,734
				9	13,316		8		37,196		31		21,436
				16	14,716		15		35,974	September	7		18,812
				23	17,422		22		36,289		14		22,826
				30	16,859		29		37,131		21		24,939
			October ...	7	16,782	October ...	6		32,664		28		26,700
				14	18,222		13		35,136	October ...	5		26,114
				21	18,387		20		35,397		12		23,663
				28	14,060		27		29,534		19		25,895
			November	4	11,834	November	3		22,095		26		25,325
				11	12,171		10		15,632	November	2		24,214
				18	19,291		17		19,112		9		30,516
				25	14,507		24		32,798		16		27,506
			December	2	12,438	December	1		27,052		23		24,675
				9	16,817		8		22,456		30		25,228
				16	20,792		15		8,923	December	7		22,647
				23	19,390		22		14,877		14		20,264
				30	14,881		29		26,899		21		25,205
				31	17,313		31		37,032		28		25,300
											31		14,832

When columns are left blank, information is wanting.

GREAT INDIAN PENINSULA RAILWAY.

Shewing food-grain Traffic during the fifteen months, July 1876 to September 1877.

Quarter ending	Tons booked by the Great Indian Peninsula Railway.												Total.
	Bombay.		Puna.		Sholapur.		Madras Railway.		Nizam's State Railway.		G. I. P. Station, Haydarabad Territory.		
	Into	Out of	Into	Out of	Into	Out of	Into	Out of	Into	Out of	Into	Out of	Tons, into and out of.
September 1876	2,209	159	4,442	624	325	5,548	3,871	......	6,283	2,171	390	9,305	35,327
December „	90,063	16,018	41,684	6,208	25,289	6,448	24,931	184	5,242	4,841	6,330	6,154	233,392
Total ...	92,272	16,177	46,126	6,832	25,614	11,996	28,802	184	11,525	7,012	6,720	15,459	268,719
March 1877	87,327	7,382	20,602	4,129	14,931	7,408	32,848	14	2,153	9,677	9,876	8,101	204,448
June „	75,300	17,907	27,019	3,931	19,033	5,076	38,700	24	4,574	11,035	10,369	5,347	218,315
Total ...	162,627	25,289	47,621	8,060	33,964	12,484	71,548	38	6,727	20,712	20,245	13,448	422,763
September 1877	70,064	34,059	36,130	3,165	27,271	2,906	34,442	456	15,207	4,718	13,617	1,312	243,347
Grand Total ...	324,963	75,525	129,877	18,057	86,849	27,386	134,792	678	33,459	32,442	40,582	30,219	934,829

Food-grain Traffic.

Half-year ending	Tons.	Ton-mileage.*	Ton-mileage.†	Receipts in Rupees.†
December 1875	110,003	41,655,712	......	......
June 1876	151,730	57,575,008	......	......
December 1876	272,782	128,943,232	110,051,122	4,029,476
June 1877	376,791	202,448,640	168,728,428	6,195,497

* According to the diagrams submitted with letter No. 954 of 8th May 1878 to the Government of India.

† According to letter No. 1795 of 3rd September 1878 to the Government of India by the Under Secretary to the Government of Bombay, Railway Department.

TABLE No. 14.

GREAT INDIAN PENINSULA RAILWAY.

Statement shewing the total number and the daily average of Down and Up trains run during the months of November 1876 and April and October 1877.

NOVEMBER 1876.

Between	Length of Section in miles.	Down. Total Number. Passenger.	Down. Total Number. Mixed.	Down. Total Number. Goods.	Down. Daily Average. Passenger.	Down. Daily Average. Mixed.	Down. Daily Average. Goods.	Up. Total Number. Passenger.	Up. Total Number. Mixed.	Up. Total Number. Goods.	Up. Daily Average. Passenger.	Up. Daily Average. Mixed.	Up. Daily Average. Goods.
Bombay—Kalyán ...	33	157	116	224	5·23	3·87	7·47	156	86	121	5·2	2·87	4·03
Kalyán—Kussara ...	42	73	30	270	2·43	1	9·00	65	30	287	2·17	1	9·57
Kussara—Igatpuri ...	10	87	...	695	2·9	...	23·17	82	...	638	2·73	...	21·27
Igatpuri—Nándgaon...	92	77	...	298	2·57	...	9·93	71	...	403	2·37	...	13·43
Nándgaon—Bhusáwal	99	72	...	301	2·4	...	10·03	65	...	396	2·17	...	13·2
Bhusáwal—Khandwa	77	40	30	156	1·33	1	5·2	34	30	211	1·13	1	7·03
Khandwa—Hurda ...	63	39	30	116	1·3	1	3·87	33	30	199	1·1	1	6·63
Hurda—Sohagpur ...	78	37	30	110	1·23	1	3·67	34	30	169	1·13	1	5·63
Sohagpur—Jabalpur...	122	37	30	113	1·23	1	3·77	33	30	199	1·1	1	6·63
Bhusáwal—Sheogaon	64	...	30	169	...	1	5·63	...	30	172	...	1	5·73
Sheogaon—Badnera ...	72	...	30	114	...	1	3·80	...	30	113	...	1	3·77
Badnera—Nagpur ...	108	...	30	63	...	1	2·10	...	30	63	...	1	2·1
Kalyán—Karijat ...	29	61	30	203	2·03	1	6·77	68	30	174	2·27	1	5·8
Karijat—Lonauli ...	17	65	58	346	2·17	1·93	11·53	75	59	295	2·5	1·97	9·83
Lonauli—Poona ...	40	61	30	170	2·03	1	5·67	66	30	152	2·2	1	5·07
Poona—Diksál ...	64	30	30	95	1	1	3·17	35	30	72	1·17	1	2·4
Diksál—Sholápur ...	99	30	30	171	1	1	5·70	38	30	99	1·27	1	3·3
Sholápur—Sháhábád...	87	30	...	99	1	...	3·30	37	...	77	1·23	...	2·57
Sháhábád—Raichur ...	73	30	...	102	1	...	3·40	33	...	76	1·1	...	2·53
Nizam's State Railway	121	...	30	50	...	1	1·67	4	30	42	·13	1	1·4
*Khamgaon do. ...	...	...	...	...	...	...	...	...	...	...	...	...	...
*Amraoti do. ...	...	...	30	14	...	1	·47	...	30	15	...	1	5
Wardha do. ...	45	...	...	...	...	...	...	...	...	...	...	...	...

APRIL 1877.

Between	Down. Total Number. Passenger.	Down. Total Number. Mixed.	Down. Total Number. Goods.	Down. Daily Average. Passenger.	Down. Daily Average. Mixed.	Down. Daily Average. Goods.	Up. Total Number. Passenger.	Up. Total Number. Mixed.	Up. Total Number. Goods.	Up. Daily Average. Passenger.	Up. Daily Average. Mixed.	Up. Daily Average. Goods.
Bombay—Kalyán ...	152	115	320	5·07	3·83	10·67	152	85	327	5·07	2·83	10·9
Kalyán—Kussara ...	62	30	365	2·07	1	12·17	62	30	366	2·07	1	12·2
Kussara—Igatpuri ...	67	...	863	2·23	...	28·77	65	..	842	2·17	...	28·07
Igatpuri—Nándgaon...	62	...	428	2·07	...	14·27	66	...	542	2·2	...	18·07
Nándgaon—Bhusáwal	62	...	405	2·07	...	13·5	60	..	502	2	...	16·73
Bhusáwal—Khandwa	32	30	206	1·07	1	6·87	30	30	292	1	1	9·73
Khandwa—Hurda ...	30	30	156	1	1	5·2	30	30	120	1	1	4·
Hurda—Sohagpur ...	31	30	144	1·03	1	4·8	30	30	181	1	1	6·03
Sohagpur—Jabalpur...	30	30	168	1	1	5·6	30	30	244	1	1	8·13
Bhusáwal—Sheogaon	4	26	199	·13	·87	6·63	...	30	202	...	1	6·73
Sheogaon—Badnera ...	4	26	132	·13	·87	4·4	...	30	143	...	1	4·77
Badnera—Nagpur ...	4	26	93	·13	·87	3·1	...	30	86	...	1	2·87
Kalyán—Karijat ...	60	30	150	2	1	5	60	30	146	2	1	4·87
Karijat—Lonauli ...	60	45	310	2	1·5	10·33	62	43	290	2·07	1·43	9·67
Lonauli—Poona ...	60	30	100	2	1	3·33	60	30	94	2	1	3·13
Poona—Diksál ...	30	30	56	1	1	1·87	30	30	49	1	1	1·63
Diksál—Sholápur ...	30	30	101	1	1	3·37	30	30	77	1	1	2·57
Sholápur—Sháhábád...	30	...	100	1	...	3·33	30	...	81	1	...	2·7
Sháhábád—Raichur ...	31	...	133	1·03	...	4·43	30	...	101	1	...	3·37
Nizam's State Railway	...	30	49	...	1	1·63	...	30	50	...	1	1·67
*Khamgaon do. ...	...	60	1	...	2	·03	...	60	1	...	2	·03
*Amraoti do. ...	...	30	10	...	1	·33	...	30	5	...	1	·17
Wardha do. ...	...	25	12	...	·83	·4	1	25	14	·03	·83	·47

OCTOBER 1877.

Between	Down. Total Number. Passenger.	Down. Total Number. Mixed.	Down. Total Number. Goods.	Down. Daily Average. Passenger.	Down. Daily Average. Mixed.	Down. Daily Average. Goods.	Up. Total Number. Passenger.	Up. Total Number. Mixed.	Up. Total Number. Goods.	Up. Daily Average. Passenger.	Up. Daily Average. Mixed.	Up. Daily Average. Goods.
Bombay—Kalyán ...	163	88	224	5·26	2·84	7·23	155	57	164	5	1·84	5·29
Kalyán—Kussara ...	66	31	363	2·13	1	11·71	62	31	280	2	1	9·03
Kussara—Igatpuri ...	66	...	678	2·13	...	21·87	61	...	577	1·97	...	18·61
Igatpuri—Nándgaon...	68	...	310	2·19	...	10·	63	...	339	2·03	...	10·94
Nándgaon—Bhusáwal	66	...	290	2·13	...	9·35	63	...	296	2·03	...	9·55
Bhusáwal—Khandwa	35	31	211	1·13	1	6·81	32	31	154	1·03	1	4·97
Khandwa—Hurda ...	33	31	144	1·06	1	4·65	31	31	130	1	1	4·19
Hurda—Sohagpur ...	33	31	133	1·06	1	4·29	34	31	92	1·10	1	2·97
Sohagpur—Jabalpur...	32	31	149	1·03	1	4·81	31	31	97	1	1	3·13
Bhusáwal—Sheogaon	31	...	111	1	...	3·58	...	31	143	...	1	4·61
Sheogaon—Badnera ...	31	...	130	1	...	4·19	...	31	158	...	1	5·10
Badnera—Nagpur ...	31	...	92	1	...	2·97	1	31	95	·03	1	3·06
Kalyán—Karijat ...	66	...	172	2·13	...	5·55	62	...	181	2	...	5·84
Karijat—Lonauli ...	66	...	361	2·13	...	11·65	65	...	335	2·10	...	10·81
Lonauli—Poona ...	66	...	115	2·13	...	3·71	62	...	116	2	...	3·74
Poona—Diksál ...	31	...	82	1	...	2·65	31	...	82	1	...	2·65
Diksál—Sholápur ...	31	...	129	1	...	4·16	31	...	151	1	...	4·87
Sholápur—Sháhábád...	31	...	127	1	...	4·10	31	...	111	1	...	3·58
Sháhábád—Raichur ...	31	...	75	1	...	2·42	31	...	77	1	...	2·48
Nizam's State Railway	1	31	70	·03	1	2·26	...	31	56	...	1	1·81
*Khamgaon do. ...	...	...	...	...	...	...	...	...	...	...	...	...
*Amraoti do. ...	...	31	1	...	1	·03	1	31	...	·03	1	...
Wardha do. ...	1	13	24	·03	·42	·77	...	13	28	...	·42	·90

* These two railways are open only during the cotton season.

TABLE No. 15.

[ABSTRACT OF TABLE No. 14.]

GREAT INDIAN PENINSULA RAILWAY.

Sections over which the trains ran.			Daily average number of trains.						Of three months daily.	
			November 1876.		April 1877.		October 1877.			
From	To	Miles.	Down.	Up.	Down.	Up.	Down.	Up.	Total.	Mean.
mbay	Kalyán	33	16·5	12·1	19·5	18·8	15·3	12·1	94·3	15·7
ılyán	Kussara	42	12·4	12·7	15·2	15·3	14·8	12·0	82·4	13·7
ıssara	Igatpuri	10	26·0	24·0	31·0	30·2	24·0	20·5	155·7	25·9
atpuri	Nándgaon	92	12·5	15·8	16·3	20·3	12·2	12·9	90·0	15·0
ındgaon	Bhusáwal	99	12·4	15·3	15·6	18·7	11·4	11·5	84·9	14·1
ıusáwal	Khandwa	77	7·5	9·1	8·9	11·7	8·9	7·0	53·1	8·8
handwa	Hurda	63	6·1	8·7	7·2	6·0	6·7	6·2	40·9	6·8
urda	Sohagpur	78	5·9	7·7	6·9	8·0	6·3	5·1	39·9	6·6
hagpur	Jabalpur	122	6·0	8·7	7·6	10·1	6·8	5·1	44·3	7·4
ıusáwal	Sheogaon	64	6·6	6·7	7·6	7·7	4·5	5·6	38·7	6·4
eogaon	Badnera	72	4·8	4·7	5·4	5·7	5·2	6·1	31·9	5·3
ıdnera	Nagpur	108	3·1	3·1	4·1	3·8	3·9	4·1	22·1	3·7
alyán	Karjat	29	9·8	9·1	8·0	7·8	7·6	7·8	50·1	8·3
ırjat	Lonauli	17	15·6	14·2	13·8	13·2	13·7	12·9	83·4	13·9
›nauli	Poona	40	8·7	8·3	6·3	6·1	5·8	5·7	40·9	6·8
oona	Diksál	64	5·2	4·5	3·8	3·6	3·6	3·6	24·3	4·1
iksál	Sholápur	99	7·7	5·6	5·3	4·5	5·1	5·8	34·0	5·7
ıolápur	Sháhábád	87	4·3	3·8	4·3	3·7	5·1	4·6	25·8	4·3
háhábád	Raichur	63	4·4	3·6	5·4	4·3	3·4	3·5	24·6	4·1

TABLE No. 16.

THE GREAT INDIAN PENINSULA RAILWAY.

Shewing the weekly earnings from merchandise during a period of four years, 1875-78.

[This Table has been compiled from information received direct from the Consulting Engineer, Bombay.]

YEAR.

1875.

Period ending		Rupees.
January ...	9	4,69,380
	16	3,90,497
	23	4,15,793
	30	4,37,813
February	6	4,77,648
	13	5,42,714
	20	4,98,429
	27	4,74,689
March ...	6	5,12,697
	13	4,98,552
	20	5,45,171
	27	3,72,770
	31	2,16,231
April. ...	3	2,16,231
	10	4,27,879
	17	4,75,269
	24	4,33,273
May ...	1	4,30,146
	8	4,47,531
	15	3,68,047
	22	3,24,045
	29	3,24,411
June ...	5	2,60,071
	12	2,55,008
	19	2,05,538
	26	1,70,952
	30	1,02,584
July ...	3	83,652
	10	1,22,364
	17	1,37,315
	24	1,40,891
	31	1,76,269
August ...	7	1,81,386
	14	1,25,540
	21	1,40,778
	28	2,13,080
September	4	1,63,051
	11	1,40,091
	18	1,35,841
	25	1,54,350
	30	1,16,962
October ...	2	58,481
	9	1,92,407
	16	2,21,436
	23	2,45,365
	30	2,19,734
November	6	2,46,858
	13	2,80,300
	20	2,96,882
	27	3,24,252
December	4	3,00,054
	11	3,17,090
	18	3,01,780
	25	2,70,470
	31	3,01,745
TOTAL Rs.	...	1,59,01,793
TOTAL TON-MILES	...	232,478,832

1876.

Period ending		Rupees.
January...	8	3,80,983
	15	3,32,131
	22	3,52,784
	29	3,59,670
February	5	4,09,624
	12	3,52,086
	19	4,46,392
	26	4,35,104
March ...	4	4,92,660
	11	4,28,143
	18	4,54,447
	25	4,96,632
	31	4,32,843
April ...	1	86,568
	8	5,41,171
	15	4,91,025
	22	4,89,478
	29	4,31,595
May ...	6	4,01,792
	13	3,74,196
	20	4,06,163
	27	3,67,862
June ...	3	4,15,712
	10	3,68,744
	17	2,71,187
	24	2,25,925
	30	1,85,213
July ...	8	1,76,744
	15	1,45,295
	22	1,47,106
	29	1,27,385
August ...	5	1,25,500
	12	1,29,147
	19	1,26,339
	26	1,18,888
September	2	1,34,401
	9	1,47,386
	16	1,92,560
	23	1,92,841
	30	2,19,030
October ...	7	2,42,524
	14	3,07,855
	21	3,07,649
	28	4,38,008
November	4	5,08,569
	11	5,60,993
	18	5,89,359
	25	5,34,477
December	2	5,28,462
	9	5,69,048
	16	5,04,043
	23	4,74,562
	31	4,22,881
...	...	1,84,01,182
...	...	364,977,912

1877.

Period ending		Rupees.
January	6	3,98,267
	13	5,27,046
	20	5,74,923
	27	5,06,479
February	3	5,45,027
	10	6,32,769
	17	6,14,754
	24	6,41,806
March ...	3	5,23,554
	10	5,65,602
	17	6,31,680
	24	6,58,255
	31	6,89,441
April ...	7	6,76,744
		7,00,690
	21	5,84,954
	28	5,51,578
May ...	5	5,82,368
	12	5,81,532
	19	5,37,012
	26	5,91,720
June ...	2	5,37,343
	9	4,80,759
	16	4,86,452
	23	4,13,791
	30	5,95,635
July ...	7	4,84,877
	14	3,71,694
	21	4,39,689
	28	4,43,889
August ...	4	4,06,803
	11	4,41,735
	1	4,86,993
	25	3,47,034
September	1	4,57,742
	8	4,17,147
	15	3,42,118
	22	4,48,575
	30	3,70,473
October...	6	3,13,302
	13	4,44,838
	20	4,44,191
	27	4,22,896
November	3	3,69,581
	10	2,94,694
	17	3,93,213
	24	3,93,688
December	1	4,21,355
	8	4,82,758
	15	4,05,494
	22	4,77,943
	31	5,81,624
...	...	3,74,59,527
...		560,279,392

1878.

Period ending		Rupees.
January...	5	3,18,418
		5,24,981
	12	4,98,593
	19	4,98,005
	26	5,60,173
February	2	5,80,544
	9	5,75,379
	16	6,00,322
	23	5,77,843
March ...	2	7,06,491
	9	6,75,621
	16	6,10,572
	23	6,26,013
	30	89,151
	31	5,34,906
April ...	6	6,20,109
	13	5,54,170
	20	5,68,618
	27	5,51,562
May ...	4	4,27,774
	11	4,48,865
	18	4,57,598
	25	4,06,957
June ...	1	4,02,877
	8	3,73,756
	15	3,17,123
	22	2,44,863
	30	1,73,367
		1,62,739
July ...	6	1,71,352
	13	1,58,802
	20	1,54,559
	27	1,44,340
August ...	3	1,72,025
	10	1,80,241
	17	1,81,723
	24	2,51,683
	31	2,54,993
September	7	2,23,815
	14	2,63,141
	21	2,28,958
	28	2,99,345
October ...	5	3,84,830
	12	2,86,861
	19	2,84,395
	26	3,26,838
November	2	4,06,188
	9	5,28,585
	16	4,94,919
	23	4,43,995
	30	3,42,225
December	7	3,82,489
	14	7,91,871
	21	
	28	
...	...	2,11,05,563
...	...	421,272,305

REMARKS.

NOTE.—These figures include transactions of north east and south east lines.

TABLE

GREAT INDIAN PE

	Capital in Pounds expended on open mileage, inclusive of Rolling-stock.	Rupees.			Percentage on column 1.	Mileage.			
		Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings.
December 1872	21,338,676	70,92,211	54,02,153	16,90,058	0·66	981·7	291·8	1273·5	179·0
June 1873	21,609,272	1,16,54,097	65,56,173	50,97,924	2·0	982·0	291·47	1273·47	182·[illegible]
December „	21,655,259	71,97,023	55,24,955	16,72,068	0·65	...	...	...	185·[illegible]
June 1874	21,680,637	1,26,67,928	68,34,278	58,33,650	2·27	939·8	326·4	1266·3	204·8
December „	21,702,777	74,98,045	50,98,305	23,99,740	0·92	939·0	327·2	1266·3	202·3
June 1875	21,777,695	1,31,56,071	53,46,705	78,09,366	3·29	...	...	...	203·6
December „	21,822,705	83,68,506	48,29,155	35,39,351	1·48	...	...	...	203·79
June 1876	21,919,040	1,32,40,073	56,27,314	76,12,759	3·18	...	...	...	202·9
December „	21,981,630	1,12,95,339	60,50,577	52,44,762	2·2	943·46	325·05	1268·5	203·[illegible]
June 1877	22,043,211	1,81,00,769	76,50,621	1,04,50,148	4·35	...	...	...	204·4
December „	22,145,353	1,40,59,219	77,10,912	63,48,307	2·63	...	...	...	209·3
June 1878	22,442,641	1,66,37,606	65,89,575	1,00,48,031	4·1	943·7	324·7	1268·5	212·5
December „	22,577,699	11,099,476	6,832,720	4,266,750	1·73	957·4	324·7	1282·1	221·3

* From 1st July 1876 the four following State Railways were worked by the Great Indian Peninsula Railw[illegible]
Nizam's.
Wardha Valley.

TABLE

GREAT INDIA[illegible]

[This Table is compileed from Statement [illegible]

Half-year ending	TONS OF GOODS SENT BY TH[illegible]									
	Khangaum (State).		Wardha Valley.		Nizam's (State.)		Dhond and Manmad.		Holkar (State)	
	Total.*	By G. I. P. only.†	Total.	By G. I. P. only.	Total.	By G. I. P. only.	Total.	By G. I. P. only.	Total.	By G. I. P. only.
December 1872 ...	400	354	...	...	...	...	...	...	...	...
June 1873 ...	3,253	3,117	...	...	...	...	...	...	...	...
December 1873 ...	182	179	...	...	...	...	...	...	...	...
June 1874 ...	3,076	2,568	3,655	3,307	...	...	...	...	...	...
December 1874 ...	405	350	1,341	1,295	3,920	3,393	...	...	7,275	7,01[illegible]
June 1875 ...	3,259	2,855	6,839	6,027	18,194	8,120	...	...	22,967	19,60[illegible]
December 1875 ...	393	369	1,701	1,574	12,389	8,540	...	...	16,832	15,01[illegible]
June 1876 ...	2,789	2,474	4,189	2,431	13,009	8,490	...	...	20,843	12,0[illegible]
December 1876 ...	209	182	711	626	30,442	18,932	...	...	43,689	8,15[illegible]
June 1877 ...	4,978	4,218	3,993	3,562	24,372	15,378	...	...	12,135	5,7[illegible]
December 1877 ...	1,377	1,236	1,549	1,226	45,321	36,155	...	...	9,798	6,17[illegible]
June 1878 ...	7,999	5,941	4,683	3,494	52,882	42,917	5,500	5,371	19,923	11,47[illegible]
December 1878 ...	1,624	1,397	2,182	1,548	40,732	26,005	2,313	2,073	11,168	8,9[illegible]
Total ...	29,944	25,240	30,841	25,090	2,41,261	1,67,930	7,813	7,444	1,34,630	95,[illegible]
Mean ...	2,303·4	1,941·5	3,084·1	2,509	26,806·8	18,658·8	3,906·5	3,722	14,958·9	10,5[illegible]

* The word "total" signifies: the total weight which passed over the G. I. P. Railway [illegible]
† "By G. I. P. only" signifies: the weight which traversed the G. I. P. Railway for [illegible]
[illegible]

No. 17.

NINSULA RAILWAY.

Lifted.*		Ton-mileage.*			Foreign Stock on Home Line.			Home Stock on Foreign Lines.		
					Vehicles.			Vehicles.		
Tons.	Passengers.	Coaching.	Goods.	Total Coaching and Goods.	Coaching.	Goods.	Locomotives.	Coaching.	Goods.	Locomotives.
244,805	1,606,182	124,690,759	207,338,635	332,029,394	...	...	...	...	...	...
418,370	1,663,341	105,237,321	351,180,522	456,417,843	...	...	...	...	...	...
275,563	1,660,743	105,318,346	213,880,134	319,198,480	...	...	...	...	...	...
520,722	1,593,716	102,879,928	436,935,432	539,815,360	...	...	...	...	...	...
331,613	1,583,789	101,817,372	228,227,270	330,044,642	...	...	...	...	...	...
566,057	1,704,119	109,625,632	435,507,993	545,133,625	...	...	...	...	...	...
379,375	1,739,766	119,124,546	298,299,540	417,424,086	...	...	...	...	...	...
644,320	2,015,466	111,171,835	615,689,269	726,861,104	...	...	...	...	...	...
592,421	2,112,430	120,017,110	540,369,119	660,386,220	...	...	...	...	...	...
983,703	2,335,231	126,803,546	962,026,249	1,088,829,795	813	23,541	...	917	12,547	...
765,135	2,376,914	120,491,833	819,821,332	940,313,165	607	16,501	...	591	8,193	...
911,250	2,616,729	129,431,335	807,925,727	937,357,062	665	13,624	...	598	6,024	...
531,869	2,432,245	132,091,457	543,898,429	675,989,886	794	12,634	...	877	7,544	...

Company, consequently the figures given in the two columns will include the results of their working :—
Khamgaon.
Amraoti.

No. 18.

PENINSULA RAILWAY.

Return of Traffic from Station to Station.

G. I. P. RAILWAY TO THE FOLLOWING RAILWAYS.

Bombay, Baroda and Central India.		Viâ East Indian.‡		Viâ Madras.‡		East Indian (proper).		Madras (proper).		Due to Jabalpur Line.
Total.	By G. I. P. only.	Total.	By G. I. P. only.	Total.	By G. I. P. only.	Total. a	By G. I. P. only. b	Total.	By G. I. P. only.	
1,219	1,219	3,519	3,409	1,425	1,405	2,558	2,512	1,421	1,394	a. 446. b. 446.
2,426	2,291	6,883	6,386	3,622	3,468	4,996	4,839	3,479	3,468	a. 1,015. b. 1,015.
2,343	2,227	10,218	9,845	6,479	6,350	8,660	8,631	6,353	6,350	a. 2,694. b. 2,694.
3,764	3,483	55,666	54,122	13,403	12,851	53,017	52,606	13,340	13,326	a. 899. b. 899.
6,183	6,123	15,109	13,774	12,251	12,038	12,961	12,567	12,184	12,038	a. 305. b. 304.
6,152	5,741	11,816	9,331	9,898	9,118	6,843	6,565	9,727	9,117	a. 332. b. 332.
5,065	4,367	6,214	5,028	10,261	9,062	3,635	3,547	9,849	9,062	a. 331. b. 331.
8,905	7,309	8,897	6,937	14,197	12,084	4,765	4,522	12,827	11,838	a. 436. b. 435.
3,079	2,754	7,839	6,071	37,957	29,961	4,712	4,441	36,329	29,961	a. 440. b. 440.
4,785	3,537	10,710	8,372	78,881	51,202	6,409	5,901	66,388	51,203	a. 711. b. 712.
7,679	7,101	16,923	15,099	50,890	31,890	11,670	11,384	34,526	31,881	a. 524. b. 523.
18,047	14,542	19,357	15,378	12,261	8,256	11, 290	10,688	9,945	8,258	a. 660. b. 658.
27,246	17,400	11,530	8,712	10,257	6,687	6,234	5,999	8,688	6,692	a. 421. b. 420.
96,893	78,094	1,84,681	1.62,464	2,61,782	1,94,372	1,37,750	1,34,202	2,25,056	194,588	....
7,453·3	6,007·2	14,206·2	42,497·2	20,137	14,951·7	10,596·1	10,323·2	17,312	14,968·3	....

the particular railway whether from the G. I. P. Railway or from the foreign lines adjacent to it.
particular railway, on the part of the G. I. P. Railway only.

TABLE

GREAT INDIAN

TONS OF GOODS RECEIVED BY THE G. I. P.

Half-year ending	Khangaum (State.) Total.*	Khangaum (State.) For G. I. P. only.†	Wardha Valley. Total.	Wardha Valley. For G. I. P. only.	Nizam's (State.) Total.	Nizam's (State.) For G. I. P. only.	Dhond & Manmad. Total.	Dhond & Manmad. For G. I. P. only.	Holkar (State.) Total.	Holkar (State.) For G. I. P. only.
December 1872 ...	458	447	...	...	...	...	...	...	...	...
June 1873 ...	13,243	13,180	...	...	...	...	...	...	...	...
December 1873 ...	671	670	...	...	...	...	...	...	...	...
June 1874 ...	20,427	20,177	3,160	2,831	...	...	...	...	...	...
December 1874 ...	2,327	2,250	1,308	1,233	1,301	551	...	...	1,233	1,214
June 1875 ...	19,404	19,289	4,476	4,205	11,881	2,886	...	...	2,004	1,830
December 1875 ...	1,241	1,234	1,516	1,475	6,117	2,450	...	...	1,230	1,195
June 1876 ...	17,038	16,976	6,442	6,155	10,595	6,522	...	...	3,474	3,351
December 1876 ...	668	663	2,040	2,019	14,423	3,361	...	...	3,578	3,42[illegible]
June 1877 ...	19,629	19,140	21,999	21,419	29,649	10,543	...	...	10,836	10,3[illegible]
December 1877 ...	5,770	5,547	26,789	25,668	12,534	7,647	...	...	18,698	16,626
June 1878 ...	20,562	20,352	31,190	28,600	8,756	2,671	3,721	3,558	23,898	21,207
December 1878 ...	1,721	1,048	24,369	22,004	11,470	3,450	596	586	11,045	9,834
Total tons ...	123,159	120,973	123,289	115,609	106,726	40,081	4,317	4,144	75,996	69,2[illegible]
Mean ...	9,473·8	9,305·6	12,328·9	11,560·9	11,858·4	4,453·4	2,158·5	2,072	8,444	7,69[illegible]

* The word "total" signifies: the total weight which passed over the G. I. P. Railway from

† "For G. I. P. only" signifies: the weight which traversed the G. I. P. Railway

‡ The weight brought by this Railway includes all sent from other lines to the G. I. P

This Table is compiled from Statement A.

TABLE

BOMBAY, BARODA AND

Shewing Food-grain Traffic during the fourteen

FOOD-GRAIN

Home Line

	Broach. Tons.	Broach. Ton-miles.	Broach. Rupees.	Surat. Tons.	Surat. Ton-miles.	Surat. Rupees.
1866.						
August	126	6,381	505	312	27,090	1,406
September	348	21,231	977	118	7,828	37[illegible]
October	650	68,468	3,262	265	22,930	1,32[illegible]
November	1,802	147,722	7,733	1,322	120,690	6,20[illegible]
December	2,785	267,169	13,718	703	82,483	4,01[illegible]
Total ...	5,711	510,971	26,195	2,720	261,021	13,420
1877.						
January	1,556	166,216	8,486	455	50,407	2,57[illegible]
February	1,213	141,403	6,904	731	84,044	4,44[illegible]
March	642	62,158	3,126	1,691	162,783	9,2[illegible]
April	721	69,411	3,561	1,172	120,411	6,70[illegible]
May	943	116,067	5,224	1,268	124,589	6,9[illegible]
June	405	49,226	2,500	551	51,884	2,94[illegible]
Total ...	5,480	604,481	29,801	5,868	594,118	32,80[illegible]
July	121	7,622	404	221	12,308	70[illegible]
August	383	59,566	2,522	286	30,995	1,3[illegible]
September	569	95,773	3,916	553	76,375	3,0[illegible]
Total ...	1,073	162,961	6,842	1,060	119,678	5,1[illegible]
Grand Total ...	12,264	1,178,413	62,838	9,648	974,817	51,465

NO. 19.

PENINSULA RAILWAY.

AILWAY, FROM THE FOLLOWING RAILWAYS.

Bombay, Baroda and Central India.		Vià East Indian.‡		Vià Madras.‡		East Indian (proper.)		Madras (proper.)		Due to Jabalpur Line.
Total.	For G. I. P. only.	Total.	For G. I. P. only.	Total.	For G. I. P. only.	Total. *a*	For G. I. P. only. *b*	Total.	For G. I. P. only.	
4,067	3,853	17,664	16,310	3,798	3,792	17,154	15,801	3,799	3,792	*a* 2,709. *b* 2,712.
9,378	8,711	25,270	24,073	23,603	23,593	24,608	23,420	23,603	23,593	*a* 4,934. *b* 4,909.
5,218	4,743	11,671	11,405	3,406	3,399	11,128	10,873	3,406	3,399	*a* 756. *b* 753.
16,769	14,759	15,990	15,081	3,800	3,780	15,517	14,616	3,800	3,780	*a* 1,811. *b* 1,809.
7,356	6,187	8,721	8,304	2,556	2,429	8,139	7,748	2,556	2,429	*a* 550. *b* 542.
16,167	12,398	21,818	18,396	3,852	2,146	20,348	17,070	3,852	2,147	*a* 4,218. *b* 4,172.
7,893	6,230	18,892	16,512	3,115	2,199	18,434	15,938	3,115	2,199	*a* 9,953. *b* 9,705.
18,808	14,533	48,467	38,682	4,470	3,067	46,165	36,841	4,470	3,075	*a* 26,160. *b* 22,738.
15,371	13,218	80,970	70,488	5,780	2,548	74,840	68,491	5,780	2,550	*a* 19,234. *b* 19,198.
26,308	22,108	179,452	157,699	4,272	2,270	141,486	123,775	4,271	2,273	*a* 27,663. *b* 25,013.
19,091	14,334	117,512	98,216	5,178	3,083	75,359	63,296	5,181	3,086	*a* 28,551. *b* 26,734.
26,452	18,942	78,607	66,500	5,365	2,650	64,485	40,334	5,366	2,650	*a* 660. *b* 658.
14,472	10,097	104,205	90,295	5,236	3,371	87,928	77,754	5,236	3,368	*a* 7,613. *b* 6,471.
187,350	150,113	729,239	631,961	74,431	58,327	605,591	515,957	74,435	58,341	
14,411·5	11,547·1	56,095·3	48,612·4	5,725·5	4,486·7	46,583·9	39,689	5,725·8	4,487·8	

he particular Railway, whether for the G. I. P. Railway only or for foreign lines adjacent to it.
or its own use only.
Railway to which access is obtained by the $\frac{\text{East Indian}}{\text{Madras}}$ Railway.
Return of Traffic from Station to Station.

No. 20.

CENTRAL INDIA RAILWAY.

onths, August 1876 to September 1877.

OOKED TO THE FOLLOWING PLACES:—

Bombay.			Foreign Line. G. I. P. Line.			Total.			Food-grain from Foreign Lines to the Bombay, Baroda and Central India Line.		
Tons.	Ton-miles.	Rupees.	Tons.	Ton-miles.	Rupees.	Tons.	Ton-miles.	Rupees.	Tons.	Ton-miles.	Rupees.
482	112,289	4,241	1	160	6	921	145,920	6,158	942	92,022	4,012
655	156,834	5,798	...	...	4	1,121	185,893	7,157	1,180	103,604	4,677
1,127	340,529	14,297	565	164,323	6,644	2,607	596,250	25,530	1,105	111,249	4,998
3,026	893,375	35,534	4,006	1,158,590	43,794	10,156	2,320,377	93,358	2,647	214,653	10,959
2,310	688,156	27,379	1,232	381,514	13,905	7,030	1,419,322	59,014	2,723	305,211	14,468
7,600	2,191,183	87,249	5,804	1,704,587	64,353	21,836	4,667,762	191,217	8,597	826,739	39,114
1,648	479,387	20,517	433	124,265	4,614	4,092	820,275	36,193	2,560	240,585	12,300
571	173,862	6,973	549	96,848	3,704	3,064	496,157	22,026	2,830	313,706	14,519
1,658	444,387	17,752	142	42,574	1,556	4,133	711,902	31,719	2,986	276,926	13,267
1,561	391,617	15,897	551	159,695	5,935	4,005	741,134	32,102	2,707	267,406	12,972
3,130	778,155	31,464	1,698	511,597	18,898	7,039	1,530,408	62,493	2,956	257,500	13,063
1,155	277,974	10,815	1,804	382,547	14,606	3,915	761,631	30,862	P	P	P
9,723	2,545,382	103,418	5,177	1,317,526	49,313	26,248	5,061,507	215,395	14,039	1,356,123	66,121
2,455	461,976	19,769	3,177	732,494	28,203	5,974	1,214,400	49,136	P	P	P
1,860	423,240	16,922	4,474	683,247	29,081	7,003	1,197,048	49,912	P	P	P
257	52,823	2,252	485	66,997	2,760	1,864	291,968	11,963	P	P	P
4,572	938,039	38,943	8,136	1,482,738	60,044	14,841	2,703,416	111,011	P	P	P
21,895	5,674,604	229,610	19,117	4,504,851	173,710	62,924	1,432,685	517,623			

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TABLE No. 21.

BOMBAY, BARODA AND CENTRAL INDIA RAILWAY.

	Capital in Pounds expended on open mileage, inclusive of Rolling-stock.	Rupees.			Percentage on column 1.	Mileage.				Lifted.		Ton-mileage.			Foreign Stock on Home Line.			Home Stock on Foreign Lines.		
		Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings.	Tons.	Passengers.	Coaching.	Goods.	Total Coaching and Goods.	Coaching Vehicles.	Goods Vehicles.	Locomotives.	Coaching Vehicles.	Goods Vehicles.	Locomotives.
December 1872 ...	7,103,912	17,80,786	16,80,083	1,00,703	0·052	366·9	22·6	389·5	63·8	95,646	1,399,930	35,119,704	38,627,836	73,747,540	...	...	...	...	...	...
June 1873 ...	7,200,673	34,17,786	18,36,842	15,80,944	1·88	389·1	22·6	411·7	64·5	267,909	1,474,773	35,567,909	111,852,845	147,420,754	...	...	...	...	...	...
December " ...	7,249,498	21,72,013	14,74,100	6,97,913	0·82	...	...	...	67·1	181,599	1,664,405	38,866,986	50,580,984	89,447,970	...	...	...	...	...	...
June 1874 ...	7,404,900	38,51,622	16,18,637	22,32,985	2·64	406·2	22 5	428·7	...	320,867	1,867,517	42,476,993	120,250,121	162,727,114	...	...	...	...	...	...
December " ...	7,425,371	20,06,792	14,34,581	5,72,211	0·7	428·5	...	...	68 5	93,414	2,077,086	41,807,863	49,617,390	91,425,253	...	...	...	...	...	...
June 1875 ...	7,443,532	39,32,430	17,49,897	21,82,533	2·69	409·1	21·1	430·3	76·9	268,185	2,242,194	47,361,121	128,471,165	175,832,286	...	...	...	...	...	...
December " ...	7,461,633	24,54,353	17,25,124	7,29,229	0·89	407·14	23·2	430·35	73·2	118,765	2,405,758	53,227,057	58,658,397	111,885,454	...	...	...	...	...	...
June 1876 ...	7,467,094	42,67,428	18,59,205	24,08,223	2·9	407·1	23·2	430·3	73·2	305,537	2,499,743	48,140,153	1 48,869,866	197,010,019	...	...	...	...	...	...
December " ...	7,466,819	25,04,864	18,47,801	6,57,063	0·8	416·1	...	...	74·6	151,924	2,478,765	49,107,098	70,313,387	119,420,485	...	...	...	...	...	...
June 1877 ...	7,527,403	47,22,631	18,28,460	28,94,171	3·52	420·8	...	444·0	74·7	343,641	2,668,504	48,537,518	159,892,946	208,430,464	36	1,724	...	7	5,493	9
December " ...	7,538,220	30,76,281	14,44,744	16,31,537	1·98	421·1	22·9	...	75·1	194,368	2,548,317	50,444,631	95,710,689	146,155,320	5	1,098	...	17	3,281	20
June 1878 ...	7,533,490	41,69,490	16,05,415	25,64,075	3·11	...	...	...	...	338,055	2,747,861	49,293,214	148,723,047	198,016,261	1	2,750	...	195	3,125	...
December " ...	7,537,911	27,35,978	16,05,443	11,30,585	1·37	...	...	...	75·5	191,492	2,824,941	51,477,403	94,130,464	145,607,867	56	3,412	...	...	1,611	...

TABLE No. 22.

BOMBAY, BARODA AND CENTRAL INDIA RAILWAY.

Shewing tons of goods sent to and from terminal points.

Half-year ending	Tons of goods sent											
	To						From					
	Foreign Stations.	Bombay.	Dubhoe.	Pali.	Kharagora.	Wadwan.	Foreign Stations.	Bombay.	Dubhoe.	Pali.	Kharagora.	Wadwan.
December 1872	4,058	15,594	*Nil*	*Nil.*	*Nil.*	284	1,222	15,594	*Nil.*	*Nil.*	*Nil.*	1,640
June 1873	9,437	27,385	287	*Nil.*	1,164	2,985	2,425	27,385	1,077	...	5,941	5,117
December "	5,504	19,600	1,345	*Nil.*	459	1,291	2,412	19,600	582	...	5,366	2,146
June 1874	16,594	27,799	1,040	782	3,814	4,646	3,758	27,799	4,456	2,715	12,694	5,099
December "	7,626	18,095	819	1,068	1,395	3,817	6,192	18,095	1,511	1,257	5,978	780
June 1875	16,221	34,546	1,792	2,631	2,028	7,363	6,152	34,546	4,435	7,697	13,828	9,616
December "	7,959	21,933	1,113	1,667	469	4,499	5,117	21,933	2,151	1,590	9,012	9,517
June 1876	19,074	35,942	1,835	4,104	2,463	7,665	8,862	35,942	4,611	10,699	18,395	9,501
December "	15,144	21,867	969	213	164	4,679	3,069	21,867	2,448	275	7,435	3,237
June 1877	27,374	43,999	2,246	2,791	2,027	8,135	4,781	43,999	6,615	15,950	21,129	7,561
December "	17,857	65,494	4,134	3,578	140	7,964	7,733	65,494	3,077	7,877	10,420	2,441
June 1878	26,906	87,196	5,243	3,636	1,649	13,581	17,929	87,196	4,742	15,155	20,771	4,013
December "	1,438	51,271	3,305	2,485	299	11,044	27,919	51,271	905	15,133	13,607	854
Total Tons ...	177,192	420,671	24,128	22,955	16,071	77,953	97,571	420,671	36,610	78,322	144,576	52,962
Mean ...	13,630	32,359	2,011	2,296	1,339	5,996	7,505	32,359	3,051	7,832	12,048	4,074

TABLE No. 23.

BOMBAY, BARODA AND CENTRAL INDIA RAILWAY.

Shewing the weekly earnings during a period of four years, 1875-1878.

YEAR.

1875.

Period ending		Rupees
nuary ...	9	73,228
	16	54,402
	23	65,806
	30	82,319
ruary	6	87,649
	13	1,02,263
	20	82,969
	27	1,08,344
rch ...	6	1,19,427
	13	1,14,773
	20	1,17,491
	27	1,00,823
il ...	31	60,749
	3	60,749
	10	1,21,688
	17	1,30,293
	24	1,34,862
y ...	1	1,41,206
	8	1,43,444
	15	1,41,585
	22	1,36,057
	29	1,29,429
e ...	5	1,11,138
	12	91,513
	19	59,287
	26 }	59,997
y ...	30 }	
	3 }	38,277
	10 }	
	17	20,178
	24	17,977
	31	22,456
ust ...	7	24,386
	14	22,688
	21	21,495
	28	21,512
ember	4	21,110
	11	19,142
	18	24,226
	25	22,780
ber ...	30	15,566
	{ 2	7,783
	{ 9	33,127
	16	44,979
	23	53,467
	30	40,927
ember	6	56,628
	13	60,515
	20	70,874
	27	82,493
mber	4	82,257
	11	82,406
	18	73,212
	25	70,982
	31	62,493
L Rs.	...	37,45,427
L TON-LES ...	...	57,649,737

1876.

Period ending		Rupees
January...	8	73,165
	15	65,624
	22	68,961
	29	72,176
February	5	78,811
	12	81,959
	19	93,417
	26	92,812
March ...	4	95,474
	11	1,01,307
	18	1,32,535
	25	1,65,943
April ...	31	1,29,616
	1	25,923
	8	1,54,359
	15	1,60,615
	22	1,46,472
	29	1,48,683
May ...	6	1,53,037
	13	1,44,388
	20	1,45,087
	27	1,44,562
June ...	3	1,36,674
	10	1,25,601
	17	87,874
	24	46,307
July ...	30	30,873
	{ 1 }	31,076
	{ 8 }	
	15	18,936
	22	15,877
	29	15,368
August ...	5	18,208
	12	17,819
	19	15,398
	26	19,140
September	2	16,413
	9	11,354
	16	18,270
	23	26,349
	30	30,602
October...	7	32,056
	14	44,820
	21	43,011
	28	65,924
November	4	75,648
	11	86,996
	18	1,00,033
	26	87,595
December	2	89,995
	9	83,065
	16	94,496
	23	98,852
	31	96,552
...	...	41,56,108
...	...	68,960,235

1877.

Period ending		Rupees
January...	6	89,583
	13	89,084
	20	89,922
	27	70,371
February	3	85,711
	10	73,686
	17	91,430
	24	1,06,322
March ...	3	95,459
	10	1,32,167
	17	1,46,237
	24	1,67,569
	31	1,66,032
April ...	7	1,67,628
	14	1,75,661
	21	1,84,785
	28	1,77,166
May ...	5	1,77,496
	12	1,61,404
	19	1,48,168
	26	1,41,197
June ...	2	1,22,830
	9	1,04,465
	16	75,004
	23	47,876
	30	39,822
July ...	7	30,626
	14	41,241
	21	32,769
	28	43,576
August ...	4	45,203
	11	34,956
	18	35,654
	25	39,276
September	1	42,067
	8	31,052
	15	28,539
	22	34,377
	29	40,644
October...	6	57,343
	13	46,413
	20	60,907
	27	55,779
November	3	64,775
	10	60,054
	17	1,08,659
	24	1,13,957
December	1	99,950
	8	1,06,767
	15	1,13,358
	22 }	1,25,992
	29 }	
	31	1,53,444
...	...	47,71,453
...	...	83,197,219

1878.

Period ending		Rupees
January...	5	1,03,664
	12	1,46,881
	19	1,18,748
	26	1,42,034
February	2	1,51,433
	9	1,36,971
	16	1,32,872
	23	1,31,174
March ...	2	1,25,306
	9	1,06,259
	16	89,018
	23	66,078
	30	81,622
April ...	6	85,087
	13	1,00,881
	20	91,010
	27	1,07,329
May ...	4	1,10,972
	11	1,05,294
	18	1,01,266
	25	97,175
June ...	1	1,07,571
	8	1,02,905
	15	89,349
	22	69,523
	29	39,580
July ...	6	27,639
	13	23,434
	20	27,077
	27	23,165
August ...	3	8,813
	10	14,597
	17	11,211
	24	27,645
	31	40,973
September	7	43,560
	14	42,035
	21	39,340
	28	53,898
October...	5	49,512
	12	61,485
	19	54,995
	26	50,254
November	2	63,477
	9	79,992
	16	82,055
	23	92,037
	30	1,05,084
December	7	1,16,959
	14	1,16,348
	21	1,16,911
	28	1,38,369
	31	65,615
...	...	42,50,882
...	...	78,206,321

TABLE No. 24.

RAJPUTANA STATE RAILWAY.

	1876.					1877.									
	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.
Total number of trains run ...	357	483	485	624	787	642	622	814	633	502	704	549	548	635	587
Daily average ...	11·5	16·1	15·6	20·8	25·4	20·7	22·2	26·3	21·1	16·2	23·4	17·7	17·7	21·2	18·9
	Daily average during fifteen months = 19·6														

TABLE No. 25.

RAJPUTANA STATE RAILWAY.

Shewing Food-grain Traffic during fifteen months, August 1876 to October 1877.

	TONS BOOKED.						Total of outwards, inwards, and local.	
	OUTWARDS TO				INWARDS TO	Local.		
	Bombay and Famine Districts.	Howrah.	Other East India Railway Stations and Foreign Lines.	Total.	Rajputana from Foreign Lines.		Tons.	Ton-mileage
1876.								
August	...	...	6	6	93	340	441	53,595
September	...	...	6	6	124	248	380	45,845
October	8	...	25	33	375	321	731	90,877
November	537	...	...	537	851	241	1,631	186,184
December	60	35	481	577	586	187	1,352	133,72[illegible]
TOTAL TONS ...	607	35	519	1,162	2,032	1,339	4,535	510,227
1877.								
January	97	20	256	373	551	484	1,409	140,555
February	62	...	552	614	1,052	664	2,332	208,395
March	18	...	29	48	1,042	1,046	2,138	151,463
April	172	27	...	200	472	335	1,008	79,690
May	88	125	63	277	79	1,186	1,543	97,122
June	9	62	...	71	174	2,251	2,498	167,66[illegible]
TOTAL TONS ...	449	235	901	1,586	3,372	5,967	10,928	844,8[illegible]
July	9	...	...	9	58	1,131	1,199	32,41[illegible]
August	...	24	9	33	92	2,311	2,437	224,0[illegible]
September	46	...	79	125	975	4,251	5,351	756,6[illegible]
October	9	...	71	80	2,420	4,912	7,412	876,4[illegible]
TOTAL TONS ...	65	24	159	248	3,545	12,606	16,400	1,890,3[illegible]
GRAND TOTAL ...	1,121	295	1,580	2,998	8,951	19,913	31,863	3,245,[illegible]

TABLE No. 26.

RAJPUTANA (STATE) RAILWAY.

	Capital expended in Pounds on open mileage, inclusive of Rolling-stock.	Rupees.			Percentage on column 1.	Mileage.				Lifted.		Ton-Mileage.			Foreign Stock on Home Line.			Home Stock on Foreign Lines.		
		Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings.	Tons.	Passengers.	Coaching.	Goods.	Total coaching and goods.	Vehicles. Coaching	Vehicles. Goods.	Locomotives.	Vehicles. Coaching	Vehicles. Goods.	Locomotives.
December 1872 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June 1873 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December „ ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June 1874 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December „ ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June 1875 ...	1,615,408	8,60,435	5,03,006	3,57,429	2·2	330·25	...	330·25	24·23	92,359	485,709	11,658,285	22,258,013	33,916,298	...	...	...	...	...	...
December „ ...	2,126,358	8,86,525	6,15,686	2,70,839	1·27	378·7	...	378·7	25·8	65,726	513,144	14,653,821	20,735,527	35,389,348	...	...	...	...	...	...
June 1876 ...	2,285,003	13,21,546	7,49,249	5,72,297	2·5	396·0	...	396·0	32·3	100,839	645,475	18,057,415	32,190,340	50,247,755	...	...	...	...	...	...
December „ ...	2,384,623	10,08,046	7,74,373	2,33,673	0·98	396·3	...	396·3	38·19	65,458	657,167	23,399,565	21,490,393	44,889,958	...	...	...	...	...	...
June 1877 ...	2,494,985	14,59,353	9,72,589	4,86,764	1·95	...	...	...	44·35	104,769	683,384	23,499,812	34,605,878	58,105,690	...	...	...	...	...	...
December „ ...	2,538,240	12,37,334	8,60,778	3,76,556	1·48	393·3	...	393·3	48·35	100,040	666,935	22,472,193	31,409,511	53,881,704	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.
June 1878 ...	2,767,629	16,53,946	9,47,978	7,05,968	2·55	425·5	3·0	428·5	49·94	150,676	653,507	21,654,240	50,879,395	72,533,635	„	„	„	„	„	„
December „ * ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

* Information is wanting.

TABLE No. 27.

RAJPUTANA (STATE) RAILWAY.

TONS OF GOODS SENT BY THE RAJPUTANA (STATE) RAILWAY TO RAILWAY

Half year ending	East Indian viâ		Oudh and Rohilkhund viâ		Great Indian Peninsula viâ		Bombay, Baroda and Central India viâ		Holkar State viâ		Nulhati State viâ		Muttra and Hattrass State viâ		Sind, Punjab and Delhi viâ		Punjab Northern State viâ		Madras viâ		South Indian viâ	
	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.
June 1875 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dec. „ ...	931·7	197·2	47·9	5,714·3	143·6	5·2	...	...	0·1	0·5	...	0·1	...	0·2	1,367·0	...	...	1·9	...	...	...	...
June 1876 ...	2,375·9	5,424·6	167·5	7,976·7	341·4	1·8	0·4	...	3·9	...	4·5	2·6	3·1	7·8	1·6	1,013·5	...	0·1	86·8	...	...	...
Dec. „ ...	9,325·2	2,967·0	2,138·7	6,103·6	532·1	381·8	...	...	11·0	2·5	0·4	...	56·6	8·6	487·7	1,543·8	...	0·1	200·8	...	...	...
June 1877 ...	1,8927	4,136	6,164	7,083	637	778	...	...	5	1	8	...	35	3	...	1,867	...	...	131	...	...	...
Dec. „ ...	1,2604·7	2,494·8	4,968·7	6,225·6	222·7	18·4	0·9	...	2·0	0·1	11·9	...	85·2	34·8	...	1,714·0	...	3·2	42·3	...	...	...
June 1878 ...	1,6560	3,292	6,245	8,986	184	4	0·7	...	7	2	17	...	168·0	24·0	4	3,361·0	...	7·0	83·0	...	...	...
Dec. „ ...	1,4230	6,233·3	5,860	7,494·9	274	623·5	1·0	...	15	10·8	2·7	...	260·6	3·9	6·3	4,792·0	...	11·2	41·0	...	...	...

TABLE No. 28.

RAJPUTANA (STATE) RAILWAY.

TONS OF GOODS RECEIVED BY THE RAJPUTANA STATE RAILWAY FROM RAILWAY—

HALF-YEAR ENDING	East India *viâ*		Oudh and Rohilkund *viâ*		Great Indian Peninsula *viâ*		Bombay, Baroda and Central India *viâ*		Holkar State *viâ*		Nulhati State *viâ*		Muttra and Hattrass State *viâ*		Sind, Punjab and Delhi *viâ*		Punjab Northern State *viâ*		Madras *viâ*		South Indian *viâ*	
	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.	Agra.	Delhi.
June 1875 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December " ...	3851·3	810·6	2843·9	1520·2	299·4	3·5	39·4	...	1·8	...	3·4	...	44·4	4·7	1·3	1542·4	0·3	2·6	1·4	...	...	...
June 1876 ...	6646·9	1243·8	12770·1	4084·9	466·9	4·7	33·8	...	39·5	...	2·7	0·1	279·6	19·4	0·5	5852·2	0·6	0·6	0·3	...	...	...
December " ...	4023·3	387·5	3238·8	1246·6	475·5	4·5	14·5	...	16·0	7·0	1·8	...	127·5	12·9	23·9	1352·3	...	0·9	0·5	...	...	...
June 1877 ...	3,676	408	11,682	3,238	671	8	58	...	11	0·8	3	...	73	8	119	6,845	0·7	...	...	0·6	...	...
December " ...	6276·1	525·3	2806·3	674·0	639·7	4·0	52·0	...	4·3	3·0	...	...	252·4	16·0	9·8	4741·0	0·1	2·2	0·3	...	1·1	...
June 1878 ...	9,174	1,839	14,586	1,561	806	9	131	...	87	...	19	...	480	15	676	13,439	...	3	0·6	...	...	...
December " ...	5368·6	779·5	5032·6	155 0·2	841·6	5·4	70·4	...	9·4	0·3	1·9	...	209·2	18·4	119·2	4731·5	...	1·9	1·7	...	0·6	...

TABLE No. 25.

SIND, PANJAB AND DELHI RAILWAY.

Shewing the Food-grain Traffic during the fourteen months, August 1876 to September 1877.

	BOOKED FROM STATIONS ON THE SIND, PANJAB AND DELHI RAILWAY TO																	
	1.—HOWRAH.			2.—BOMBAY.			3.—KARACHI.			4.—MADRAS RAILWAY.			OTHER STATIONS SHORT OF 1, 2, 3 AND 4.			TOTAL EXPORT.		
	Tons.	Ton-miles on Railway		Tons.	Ton-miles on Railway		Tons.	Ton-miles on Railway		Tons.	Ton-miles on Railway		Tons.	Ton-miles on Railway		Tons.	Ton-miles on Railway	
		Sind, Punjab and Delhi.	Foreign.		Sind, Punjab and Delhi.	Foreign.		Sind, Punjab and Delhi.	Foreign.		Sind, Punjab and Delhi.	Foreign.		Sind, Punjab and Delhi.	Foreign.		Sind, Punjab and Delhi.	Foreign.
1876.																		
August ...	...	...	...	8	2,340	9,776	...	...	...	...	...	...	1	40	288	9	2,380	10,064
September ...	283	27	942	...	...	...	...	...	...	...	...	...	7	107	272	290	134	1,214
October ...	116	2,916	109,272	...	...	...	143	42,932	...	...	...	...	8	534	788	267	46,382	110,060
November ...	1,145	117,935	359,530	299	72,358	381,524	42	11,466	...	...	...	...	159	13,356	81,885	1,645	215,115	822,939
December ...	2,057	376,431	277,695	122	5,490	74,542	191	42,975	...	...	...	...	82	6,068	37,966	2,452	430,964	390,203
TOTAL TONS ...	3,601	497,309	747,439	429	80,188	465,842	376	97,373	...	...	...	...	257	20,105	121,199	4,663	694,975	1,334,480
1877.																		
January ...	2,162	328,624	291,870	210	46,410	161,070	149	27,118	...	59	16,284	61,419	113	31,979	98,310	2,693	450,415	612,669
February ...	2,615	99,370	2,463,330	55	7,770	67,210	370	87,690	...	19	4,161	32,471	108	16,416	29,916	3,167	215,407	2,592,927
March ...	6,062	715,316	5,710,404	1,251	207,666	1,542,483	115	71,760	...	455	99,645	777,595	101	7,777	30,805	7,984	1,102,164	8,061,287
April ...	6,335	1,197,315	596,750	3,183	693,894	3,876,894	40	13,480	...	903	223,041	1,566,705	27	2,457	3,753	10,488	2,130,187	6,044,102
May ...	7,521	1,356,058	7,084,782	3,167	775,385	3,814,832	161	24,926	...	157	35,097	268,313	294	83,708	167,700	11,300	2,275,174	11,335,627
June ...	9,800	1,466,868	9,231,600	2,306	474,941	2,847,473	498	155,740	...	1,013	208,551	1,732,207	361	73,918	107,992	13,978	2,380,018	13,919,272
TOTAL TONS ...	34,495	5,163,551	25,378,736	10,172	2,206,066	12,309,962	1,333	380,714	...	2,606	586,779	4,438,710	1,004	216,255	438,476	49,610	8,553,365	42,565,884
July ...	5,003	912,867	4,741,086	5,734	1,357,929	7,277,218	1,258	314,441	...	1,954	392,004	3,339,386	329	61,068	272,388	14,278	3,038,309	15,630,078
August ...	1,749	209,627	1,647,558	1,994	438,403	2,594,650	786	200,074	...	282	44,921	420,570	5,208	1,021,618	856,693	10,019	1,914,643	5,519,471
September ...	...	...	...	750	160,584	922,897	799	219,582	...	74	17,729	70,694	7,503	1,593,017	1,076,169	9,126	1,990,912	2,069,760
TOTAL TONS ...	6,752	1,122,494	6,388,644	8,478	1,956,916	10,794,765	2,843	734,097	...	2,310	454,654	3,830,650	13,040	2,675,703	2,205,250	33,423	6,943,864	23,219,309
GRAND TOTAL TONS	44,848	6,783,354	32,514,819	19,079	4,243,170	23,570,569	4,552	1,212,184	...	4,916	1,041,433	8,269,360	14,301	2,912,063	2,764,925	87,696	16,192,204	67,119,673

TABLE

SIND, PANJAB AND

(*Punjab*

[This Table is compiled from Table A

		Capital in Pounds expended on open mileage, exclusive of Rolling-stock.	RUPEES.*			Percentage on column 1.†	MILEAGE.			
			Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings
December	1872 ...	5,801,327	17,44,651	16,95,968	48,683	0·05	551·5	...	551·5	7[illegible]
June	1873 ...	6,258,737	22,43,522	16,60,261	5,83,261	0·85	553·61	...	553·61	...
December	" ...	6,334,133	22,82,814	13,50,231	9,32,583	1·35	553·61	...	553·61	...
June	1874 ...	6,394,427	35,41,790	16,83,000	18,58,790	2·67	...	...	...	...
December	" ...	7,740,041§	22,42,849	13,00,460	9,42,389	0·95	...	...	...	...
June	1875 ...	...	...	...	...	...	...	...	...	...
December	" ...	9,498,817§	19,83,772	14,84,393	4,99,379	0·76	...	...	...	...
June	1876 ...	9,528,131§	26,95,717	17,47,093	9,48,624	2·96	...	...	...	...
December	" ...	9,547,884§	23,60,375	17,42,803	6,17,572	1·0	...	...	...	...
June	1877 ...	9,558,576§	31,77,402	18,95,391	12,82,011	1·97	...	...	...	...
December	" ...	9,591,768§	34,67,322	18,67,999	15,99,323	4·06	...	...	...	...
June	1878 ...	9,654,065§	36,66,695	21,26,936	15,39,759	3·48	...	...	...	...
December	" ...	9,731,172	89,30,214	57,66,124	31,70,090	2·98	...	...	...	...

* Excluding steam-boat expenses and earnings.
† Including steam-boats.
§ Exclusive of steam-boats.

TABLE No. 31.

SIND, PANJAB AND DELHI RAILWAY.

Showing the daily average number of trains that passed certain stations during the fourteen months August 1876 to September 1877.

STATIONS PASSED BY THE TRAINS.	1876.					1877.									GRAND TOTAL
	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	
Ghazeeabad	5·83	6·4	6·3	6·63	9·0	8·1	7·2	7·9	8·9	7·8	10·2	10·5	11·9	13·5	120·16
Saharunpur ...	5·93	6·4	7·6	8·0	9·0	9·1	8·1	8·0	9·5	8·0	10·5	11·4	12·3	12·6	126·43
Phillour	5·9	5·8	6·0	7·3	10·16	9·5	8·9	7·8	11·3	7·4	10·8	10·6	10·6	11·1	[illegible]
TOTAL ...	17·66	18·6	19·9	21·93	28·16	26·7	24·2	23·7	29·7	23·2	31·5	32·5	34·8	37·2	[illegible]
DAILY AVERAGE ...	0·57	0·62	0·64	0·73	0·91	0·86	0·86	0·76	0·99	0·75	1·05	1·05	1·12	1·24	[illegible]

To. 30.

ELHI RAILWAY.

ection).

e Review of the Revenue Account.]

Lifted.		Ton-mileage.			Foreign Stock on Home Line.‖			Home Stock on Foreign Lines.‖		
					Vehicles.		Locomotives.	Vehicles.		Locomotives.
Tons.	Passengers.	Coaching.	Goods.	Total Coaching and Goods.	Coaching	Goods		Coaching	Goods	
76,966	869,380	36,176,740	68,016,503	104,193,243	...	...	...	...	...	...
119,093	1,071,254	48,992,743	83,788,684	132,781,427	...	...	...	...	...	...
137,210	910,070	49,299,611	109,747,066	159,046,677	...	...	...	...	...	...
255,977	999,963	60,903,375	145,889,529	206,792,904	...	...	...	...	...	...
143,548	1,038,477	58,360,709	78,752,761	137,113,470	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
100,182	985,601	60,479,089	57,053,659	117,532,748	...	...	...	...	...	...
173,140	1,174,010	64,117,534	92,219,044	156,336,578	...	...	...	...	...	...
132,793	1,127,895	58,478,260	71,772,211	130,250,471	...	...	...	...	...	...
244,009	1,310,366	70,598,319	100,280,501	170,878,820	...	...	...	...	...	...
281,146	1,295,369	64,250,150	152,262,568	216,512,718	...	...	...	...	...	...
320,188	1,498,309	68,353,947	163,641,616	231,995,563	...	...	...	...	...	...
254,199	1,437,368	81,391,155	125,955,072	207,346,227	...	...	...	...	...	...

‖ No information has been given.

TABLE No. 32.

SIND, PANJAB AND DELHI RAILWAY.

Half year ending	Weight of goods in tons sent over the Sind, Punjab and Delhi Railway											
	To						From					
	Railway.			Station.			Railway.			Station.		
	East Indian	Rajputana (State)	Punjab Northern (State)	Delhi.	Ghazeabad.	Shershah.	East Indian	Rajputana (State)	Punjab Northern (State)	Delhi.	Ghazeabad.	Shershah.
December 1872 ...	...	...	...	...	...	...	...	...	...	...	...	...
June 1873 ...	18,195	...	3,307	4,633	91	1,138	20,671	17	...	2,587	63	1,863
December „ ...	50,700	993	...	6,905	519	734	15,202	679	...	2,279	67	3,309
June 1874 ...	...	...	...	...	...	...	...	...	...	...	...	...
December „ ...	40,606	1,108	...	4,875	128	6,332	17,433	543	...	2,648	97	3,981
June 1875 ...	12,349	3,507	339	3,168	97	8,348	20,959	571	68	3,453	151	4,554
December „ ...	8,162	1,523	1,023	5,899	84	3,606	17,539	1,366	809	3,984	51	2,896
June 1876 ...	...	...	...	...	...	...	...	...	...	...	...	...
December „ ...	8,849	1,312	3,227	4,626	88	4,729	25,836	1,520	6,795	4,574	242	2,813
June 1877 ...	54,284	6,845	6,324	2,933	515	5,048	22,987	1,983	6,149	7,153	264	1,841
December „ ...	74,768	4,705	5,652	10,347	404	723	18,438	1,721	8,868	7,994	307	3,099
June 1878 ...	72,731	13,945	10,187	8,291	397	516	33,234	3,379	15,778	6,839	360	1,867
December „ ...	...	...	...	...	...	...	...	...	...	...	...	...
Total tons ...	340,644	33,938	30,059	51,677	2,323	31,174	192,299	11,779	38,467	41,531	1,602	26,223
Mean tons ...	37,849	4,242	4,294	5,742	258	3,464	21,367	1,309	6,411	4,614	178	2,914

N. B.—Where colums are left blank, information is wanting.

TABLE NO. 33.

SCINDE, PANJAB AND DELHI RAILWAY.

Table shewing the weekly earnings from merchandize during a period of four years 1875-78.

1875.			1876.			1877.			1878.		
Period ending.		Rupees.	Period ending.		Rupees.	Period ending.		Rupees.	Period ending.		Rupees.
January ...	9	1,00,280	January ...	8	1,00,295	January ...	6	1,03,662	January ...	5	74,03[illegible]
	16	70,691		15	82,705		13	1,27,985		12	95,77[illegible]
	23	69,155		22	88,879		20	1,09,331		19	1,24,410
	30	66,485		29	90,374		27	1,13,955		26	2,94,25[illegible]
February ...	6	72,246	February ...	5	1,22,041	February ...	3	1,06,930	February ...	2	1,55,69[illegible]
	13	69,242		12	1,00,089		10	1,20,949		9	1,78,76[illegible]
	20	66,819		19	1,11,649		17	1,18,993		16	1,71,07[illegible]
	27	69,218		26	1,45,944		24	1,49,403		23	2,25,99[illegible]
March ...	6	84,239	March ...	4	92,024	March ...	3	1,55,190	March ...	2	1,81,1[illegible]
	13	80,887		11	1,03,620		10	1,35,258		9	1,72,5[illegible]
	20	91,226		18	1,12,157		17	1,03,568		16	1,19,01[illegible]
	27	84,875		25	1,18,846		24	1,30,479		23	1,12,8[illegible]
April ...	3	96,096	April ...	1	1,25,402		31	1,51,690		30	1,26,55[illegible]
	10	77,835		8	1,04,577	April ...	7	1,60,415	April ...	6	1,07,7[illegible]
	17	83,519		15	1,03,281		14	1,05,886		13	1,32,19[illegible]
	24	65,053		22	1,16,614		21	1,28,013		20	72,21[illegible]
May ...	1	66,628		29	99,447		28	1,05,840		27	98,16[illegible]
	8	69,950	May ...	6	1,19,539	May ...	5	1,14,685	May ...	4	98,8[illegible]
	15	99,934		13	1,10,180		12	1,27,603		11	85,74[illegible]
	22	83,072		20	1,04,948		19	1,18,442		18	87,07[illegible]
	29	70,706		27	1,15,956		26	1,09,286		25	93,[illegible]
June ...	5	53,002	June ...	3	1,17,257	June ...	2	1,10,081	June ...	1	77,44[illegible]
	12	87,211		10	1,03,349		9	1,02,982		8	64,5[illegible]
	19	62,859		17	1,06,013		16	1,17,829		15	71,78[illegible]
	26	72,513		24	92,585		23	1,10,913		22	67,50[illegible]
	30	44,615		30	1,03,163		30	1,25,715		30	79,7[illegible]
July ...	10	1,23,129	July ...	7	81,383	July ...	7	1,02,152	July ...	6	50,90[illegible]
	17	61,250		15	96,524		14	1,15,263		13	55,26[illegible]
	24	72,498		22	1,06,921		21	1,12,702		20	60,8[illegible]
	31	81,741		29	1,07,898		28	1,17,462		27	41,81[illegible]
August ...	7	69,675	August ...	5	69,550	August ...	4	1,01,674	August ...	3	46,20[illegible]
	14	44,730		12	69,194		11	1,20,200		10	61,01[illegible]
	21	32,695		19	76,364		18	1,38,543		17	68,21[illegible]
	28	33,831		26	60,609		24	1,43,810		24	4[illegible]
September ...	4	45,605	September ...	2	72,296	September ...	1	1,05,677		31	39,53[illegible]
	11	72,531		9	60,961		8	1,97,945	September ...	7	46,14[illegible]
	18	67,249		16	85,238		15	1,13,900		14	53,43[illegible]
	25	82,597		23	67,815		22	1,74,780		21	53,45[illegible]
October ...	2	63,899		30	74,644		29	1,74,794		28	55,[illegible]
	9	41,742	October ...	7	75,935	October ...	6	1,74,850	October ...	5	84,91[illegible]
	16	57,743		14	83,929		13	1,77,167		12	81,5[illegible]
	23	70,881		21	1,11,837		20	1,36,353		19	96,0[illegible]
	30	92,224		28	1,38,289		27	1,15,492		26	98,09[illegible]
November ...	6	97,472	November ...	4	1,24,872	November ...	3	1,12,737	November ...	2	1,08,17[illegible]
	13	64,122		11	90,014		10	1,05,727		9	1,07,0[illegible]
	20	80,413		18	1,06,163		17	1,09,738		16	1,43,[illegible]
	27	88,147		25	1,14,790		24	99,929		23	1,14,1[illegible]
December ...	4	71,786	December ...	2	79,072	December ...	1	86,434		30	1,21,9[illegible]
	11	79,837		9	1,08,516		8	1,01,121	December ...	7	1,33,8[illegible]
	18	80,230		16	1,05,126		15	1,09,300		14	1,11,[illegible]
	25	81,589		23	1,26,049		22	1,36,915		21	1,29,0[illegible]
	31	84,453		31	89,718		31	2,56,840		31	1,74,[illegible]
TOTAL Rs.	...	38,00,425	...	...	51,74,641	...	...	65,06,588	...	...	53,44,15[illegible]

TABLE No. 34.

... RAILWAY

HALF-YEAR ENDING		CALCUTTA FROM			BARR FROM			V...
		Up.	Down.	TOTAL.	Up.	Down.	TOTAL.	Up...AL.
June	1875	358,461	2	358,463	590	2,349	2,939	Ni...421
December	„	300,886	1	300,887	303	4,792	5,095	...294
June	1876	79,417	14	79,431	388	8,894	9,282	...569
December	„	463,857	3	463,860	3,027	6,717	9,744	...608
June	1877	622,408	5	622,413	548	5,032	5,580	Ni...259
December	„	529,726	36	529,762	322	4,294	4,616	5...982
June	1878	550,932	93	551,025	405	6,205	6,610	57...670
December	„	470,344	76	470,420	259	3,098	3,357	41...464
TOTAL TONS		3,376,031	230	3,376,261	5,842	41,381	47,223	1,0...267

HALF-YEAR ENDING		CALCUTTA TO			BARR.			Viâ BA...		
		Up.	Down.	TOTAL.	Up.	Down.	TOTAL.	Up.	Down.	Up...
June	1875	109,538	*Nil.*	109,538	3,733	5,069	8,802	...	*Nil.*	14,01...
December	„	95,342	*Nil.*	95,342	322	2,438	2,760	...	...	9,86...
June	1876	115,364	*Nil.*	115,364	1,662	3,104	4,766	...	*Nil.*	...9,71...
December	„	119,896	...	119,896	517	3,027	3,544	...	...	10,35...
June	1877	124,676	322	124,998	2,881	5,079	7,960	...	*Nil.*	17,24...
December	„	120,115	100	120,215	8,932	6,098	15,030	369	2,696	5,73...
June	1878	135,729	*Nil.*	135,729	9,830	4,735	14,565	3,852	10,354	10,52...
December	„	119,145	*Nil.*	119,145	2,293	2,548	4,841	2,837	7,840	11,53...
TOTAL TONS		939,805	422	940,227	30,170	32,098	62,268	7,058	20,890	...08,98...

Table

Period

January

February

March

April

May

Viâ Allyghur from			Gazeebad from			*Viâ* Gazeebad from			Delhi.			*Viâ* Delhi.		
Up.	Down.	Total.	Up.	Down.	Total.	Up.	Down.	Total.	Up.	Down.	Total.	Up.	Down.	Total.
9,770	8,646	18,416	1,229	7,172	8,401	7	21,540	21,547	*Nil.*	16,712	16,712	*Nil.*	4,761	4,761
6,280	5,277	11,557	561	8,808	9,369	*Nil.*	17,559	17,559	*Nil.*	17,260	17,260	*Nil.*	2,427	2,427
5,885	8,237	14,122	4,084	9,936	14,020	*Nil.*	33 131	33,131	*Nil.*	27,547	27,547	*Nil.*	5,433	5,433
7,328	7,811	15,139	960	9,184	10,144	23	26,229	26,252	⅓	17,079	17,079⅓	*Nil.*	1,616	1,616
9,918	9,040	18,958	416	10,361	10,777	⅓	23,575	23,575⅓	9	20,169	20,178	*Nil.*	3,588	3,588
42,986	8,394	51,380	130	16,051	16,181	*Nil.*	18,727	18,727	...	13,635	13,635	*Nil.*	1,231	1,231
57,550	9,273	66,823	1,345	16,533	17,878	*Nil.*	36,815	36,815	24	17,516	17,540	*Nil.*	3,428	3,428
8,874	7,965	16,839	465	12,990	13,455	*Nil.*	35,347	35,347	24	14,651	14,675	*Nil.*	2,551	2,551
148,591	64,643	213,234	9,190	91,035	100,225	30⅓	212,923	112,953⅓	57⅓	144,569	144,626⅓	*Nil.*	25,035	25,035

June

July

August

September

October

November

December

Viâ Alighur.			Gazeebad.			*Viâ* Gazeebad.			Delhi.			*Viâ* Delhi.		
	Down.	Total.	Up.	Down.	Total.	Up.	Down.	Total.	Up.	Down.	Total.	Up.	Down.	Total.
5	15,777	29,792	94	319	413	*Nil.*	12,016	12,016	*Nil.*	8,238	8,238	*Nil.*	14,855	14,855
7	8,074	17,941	214	274	488	*Nil.*	2,169	2,169	*Nil.*	6,917	6,917	*Nil.*	7,680	7,680
4	19,253	48,967	244	377	621	*Nil.*	6,269	6,269	3	14,891	14,894	*Nil.*	13,393	•13,393
3	8,734	19,087	53	610	663	*Nil.*	9,936	9,936	75	17,505	17,580	*Nil.*	9,481	9,481
4	21,928	39,172	127	3,887	4,014	*Nil.*	55,837	55,837	24	20,768	20,792	*Nil.*	11,666	11,666
1	10,043	15,774	103	4,275	4,378	*Nil.*	73,929	73,929	28	21,919	21,947	*Nil.*	8,892	8,892
1	31,582	42,103	273	2,922	3,195	*Nil.*	68,888	68,888	132	18,677	18,809	*Nil.*	12,421	12,421
5	13,842	25,377	171	408	579	*Nil.*	10,977	10,977	187	25,837	26,024	*Nil.*	14,312	14,312
0	129,233	238,213	1,279	13,072	14,351	*Nil.*	240,021	240,021	449	134,752	135,201	*Nil.*	92,700	92,700

Tota

TABLE No. 37.

EAST INDIAN RAILWAY—MAIN LINE.

This Table is Compiled from Table A of the Review of the Revenue Account.

	Capital in Pounds expended on open mileage, inclusive of Rolling-stock.	Rupees.			Percentage on column 1.†	Mileage.				Lifted.		Ton-mileage.			Foreign Stock on Home Line.			Home Stock on Foreign Lines.		
		Earnings.*	Expenditure.*	Profits.*		Single.	Double	Total worked	Sidings.	Tons.	Passengers.	Coaching.	Goods.	Total Coaching and Goods.	Vehicles. Coaching.	Vehicles. Goods.	Locomotives.	Vehicles. Coaching.	Vehicles. Goods.	Locomotives.
	£																			
December 1872 ...	25,885,192	1,18,38,567	52,42,796	65,95,771	2·34	866	415½	1,281½	...	495,208	2,607,029	214,608,578	496,036,691	710,645,269	...	...	...	...	...	...
June 1873 ...	25,885,192	1,43,84,083	53,06,255	90,77,828	3·21	866	415½	1,281	...	731,70	3,032,771	188,173,722	700,406,875	888,580,597	...	...	...	...	...	...
December " ...	26,083,864	1,36,08,903	51,88,693	84,20,210	2·96	869½	410·5	1,280	278¾	749,907	2,800,364	192,417,457	696,692,169	889,109,626	...	...	...	...	...	...
June 1874 ...	26,083,864	2,11,93,608	68,48,386	1,43,45,222	5·04	869¼	410·5	1,279¾	282	1,397,989	3,277,042	203,337,218	1,252,079,177	1,455,416,395	...	...	...	...	...	...
December " ...	26,163,789	1,34,11,495	53,27,521	80,83,974	2·83	869¼	410·5	1,279¾	279¼	746,558	3,184,095	192,441,855	676,317,193	868,759,048	...	...	...	...	...	...
June 1875 ...	26,188,443	1,45,64,442	55,18,047	90,46,395	3·17	869¼	410·5	1,279¾	283¼	869,511	3,379,729	230,272,909	622,206,138	852,479,047	...	...	..	...	...	...
December " ...	26,213,159	1,27,24,809	49,11,251	78,26,236	2·7	869¼	410·5	1,279¾	284·52	680,442	3,036,361	229,679,498	509,059,784	738,739,282	...	...	...	...	...	...
June 1876 ...	26,229,252	1,67,53,857	55,79,856	1,11,80,824	3·9	¼	410·5	1,279¾	282¼	984,164	3,515,566	243,587,048	757,055,619	1,000,642,667	...	...	...	...	...	...
December " ...	26,245,334	1,60,15,285	55,45,281	1,04,76,431	3·66	869·0	410·5	1,279·5	282·46	934,065	3,205,740	253,790,656	737,049,326	990,839,982	...	...	...	...	...	...
June 1877 ...	26,312,815	2,07,37,115	64,03,967	1,42,98,077	4·98	869·0	410·5	1,279·5	285·7	1,286,861	3,819,670	253,115,692	1,020,025,446	1,273,141,138	1,129	13,989	...	1,513	15,456	17
December " ...	26,334,485	1,89,20,126	59,03,471	1,30,09,555	4·53	869·0	410·5	1,279·5	287·6	1,283,290	3,602,401	248,132,706	976,347,661	1,224,480,367	5,405	17,585	...	1,939	25,062	29
June 1878 ...	26,350,414	1,94,04,760	63,66,011	1,30,42,397	4·54	869·0	410·5	1,279·5	287·6	1,390,166	3,909,144	272,995,852	947,215,664	1,220,211,516	1,085	19,569	2	2,024	21,261	23
December " ...	26,411,479	1,65,99,423	61,77,484	1,04,21,939	3·62	873·1	410·6	1,283·7	290·7	1,056,563	3,655,113	272,544,113	746,878,021	1,019,422,134	5,619	12,507	1	2,586	28,527	38

* Exclusive of steam-boat service.
† Inclusive of

TABLE No. 38.

EAST INDIAN RAILWAY—MAIN LINE.

Shewing the weekly goods earnings during a period of four years, 1875—1878.

YEAR.													
1875.			1876.			1877.				1878.			
Period ending		£	Period ending		£	Period ending		£	Ton-miles.	Period ending		£	Ton-miles.
January ...	9	46,802	January ...	8	40,566	January...	13	86,196	...	January...	12	86,802	23,483,913
	16	34,687		15	35,522		20	44,848	...		19	47,683	12,722,02[illegible]
	23	35,255		22	36,616		27	53,560	...		26	57,152	15,368,95[illegible]
	30	36,341		29	37,528				...				
February ...	6	36,352	February ...	5	35,203	February	3	53,714	...	February	2	49,913	13,597,2[illegible]
	13	36,855		12	37,867		10	47,711	...		9	51,053	14,894,0[illegible]
	20	36,531		19	42,180		17	51,074	...		16	50,973	14,254,3[illegible]
	27	40,088		26	40,346		24	55,901	...		23	52,235	14,324,9[illegible]
March ...	6	37,442	March ...	4	40,206	March ...	3	49,892	...	March ...	2	50,555	13,963,9[illegible]
	13	35,893		11	38,317		10	52,896	...		9	54,819	13,719,86[illegible]
	20	40,450		18	37,071		17	51,796	...		16	52,410	14,468,8[illegible]
	27	29,742		25	37,808		24	50,877	...		23	46,707	12,694,507
							31	52,223			30	49,983	13,364,28[illegible]
April ...	3	37,152	April ...	1	42,754	April ...	7	48,928	...	April ...	6	46,208	12,371,46[illegible]
	10	34,509		8	40,436		14	51,671	...		13	44,053	12,250,01[illegible]
	17	29,961		15	40,692		21	55,208	...		20	46,789	12,318,95[illegible]
	24	33,948		22	42,914		28	53,136	...		27	50,701	14,389,51[illegible]
				29	44,814								
May ...	1	33,119	May ...	6	42,911	May ...	5	51,129	...	May ...	4	50,467	14,580,31[illegible]
	8	35,520		13	43,622		12	54,566	...		11	48,902	14,501,4[illegible]
	15	32,477		20	46,624		19	59,181	...		18	54,196	16,601,45[illegible]
	22	36,776		27	46,105		26	54,829	...		25	56,146	16,977,17[illegible]
	29	31,713											
June ...	5	32,808	June ...		45,685	June ...	2	58,396	...	June ...	1	52,064	15,417,15[illegible]
	12	30,944		10	43,154		9	54,657	...		8	40,222	11,916,37[illegible]
	19	27,330		17	38,981		16	53,338	...		15	42,317	12,552,6[illegible]
	30	38,900		30	64,828		23	55,571	...		22	44,175	12,752,3[illegible]
							30	61,460	...		30	{ 48,027 { 3,053	13,847,7[illegible]
July ...	10	33,376	July ...	8	45,967	July ...	7	54,748	17,168,518	July ...	13	65,380	18,950,4[illegible]
	17	22,862		15	36,858		14	51,230	16,367,970		20	32,267	9,026,1[illegible]
	24	25,999		22	34,866		21	51,563	16,756,748		27	30,046	8,362,5[illegible]
	31	25,646		29	30,694		28	58,023	17,251,278				
August ...	7	21,023	August ...	5	23,244	August ...	4	56,722	17,376,372	August ...	3	27,101	7,322,64[illegible]
	14	22,102		12	24,293		11	54,899	16,692,716		10	29,175	7,582,81[illegible]
	21	22,183		19	24,750		18	46,219	14,219,753		17	30,614	7,075,6[illegible]
	28	22,421		26	26,784		25	48,473	15,231,077		24	27,268	6,876,9[illegible]
											31	31,079	8,226,1[illegible]
September ...	4	24,341	September...	2	28,847	September	1	37,284	11,152,044	September	7	31,237	9,261,8[illegible]
	11	23,471		9	29,874		8	39,199	11,554,833		14	31,877	10,422,5[illegible]
	18	27,745		16	32,023		15	33,077	9,577,719		21	35,030	9,977,[illegible]
	25	25,392		23	34,174		22	39,019	11,265,173		28	41,223	10,778,[illegible]
				30	29,677		29	39,129	10,778,369				
October ...	2	25,581	October ...	7	38,876	October ...	6	36,373	9,856,090	October ...	5	31,866	18,40,8[illegible]
	9	21,237		14	41,860		13	38,459	10,809,976		12	32,666	10,809,9[illegible]
	16	16,903		21	39,018		20	46,504	12,848,967		19	44,753	12,848,9[illegible]
	23	26,142		28	44,938		27	48,519	13,638,266		26	44,785	13,585,9[illegible]
	30	31,514											
November ...	6	28,915	November...	4	42,516	November	3	52,758	14,459,146	November	2	49,136	14,484,2[illegible]
	13	36,194		11	43,292		10	47,479	12,786,236		9	43,451	12,486,7[illegible]
	20	35,428		18	46,458		17	50,737	13,672,900		16	44,610	11,826,4[illegible]
	27	37,163		25	49,483		24	51,266	13,852,291		23	47,496	12,068,3[illegible]
											30	47,580	12,193,[illegible]
December ...	4	42,220	December ...	2	47,489	December	1	48,124	12,783,461	December	7	47,421	12,204,0[illegible]
	11	42,476		9	53,314		8	47,050	12,296,973		14	57,993	14,657,0[illegible]
	18	39,133		16	53,788		15	46,241	12,277,614		21	52,942	14,060,2[illegible]
				23	52,832		22	48,956	13,065,049				
	31	61,621		31	58,582		31	58,004	19,349,099		31	72,766	19,752,[illegible]

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TABLE No. 41.

EAST INDIAN RAILWAY.

...ewing the number of trains that passed the following stations at the specified times :—

Period	Double Line—411 Miles. Burdwan.	Muddapur.	Mokamah.	Buxar.	Single Line—416 Miles. Moghul Serai.	Allahabad.	Cawnpur,	Tundla.	Remarks.
1876	25	12·8	19·4	11·4	10·7	11·1	8·7	8·2	
„	26	15	20	10	11	11	10	8	
„	27	16	21	12	12	11	10	8	
„	23·8	14·4	19·8	13·4	13·5	14·1	12	9·5	
„	32·1	19·2	24·8	18·0	18·0	24·5	21·8	15·1	
„	27	18	26	21	23	33	30	16	
„	31·8	17·4	22·4	15·2	15·2	17·4	15	12	
„	30	16	22	14	14	18	16	12	
„ *	36	17	21	16	17	22	2c	14	
„ *	37·8	18·7	23·2	16·5	16·4	22·2	17·5	12·8	
„ *	36	20	24	14	16	22	23	16	
„	38·4	22·7	25·85	16	16	23·1	23·8	17·5	
1877	33·4	19·2	24·1	15·8	16·5	25	23	17·4	
„	37	25	27	16	16	26	26	18	
„ *	35	22	26	18	18	24	21	14	
„ *	38	21·7	25·4	17·2	18·7	24	20·7	13·5	
„	35·4	24·7	26·7	18	19	23·5	20·7	14	
„	34	21	26	19	20	23	22	13	
„ *	37	23·5	27·2	17·5	17·5	23·8	21·8	12·8	
„	41	31	29	20	22	24	21	13	
„ *	42	24	28	19	19	22	19	14	
„ *	38·7	27·7	28·8	20·7	20	25	21·2	12·7	
„	36	25·2	27·4	20·2	20	21·8	19	12·7	
„	35	23	30	22	22	25	20	12	
„ *	37	29	29·7	20·5	21	26	22·2	13	
„	34	27	29	20	21	30	28	12	
„ *	40	26	30	18	19	26	24	12	
„	33·8	23	27	17·4	17·7	18·7	15·7	12·2	
„ *	36·4	21·8	25	15·5	15·7	17·5	13·4	9	
„	29	16	23	13	13	23	21	17	

* Week ending on the dates named.

January

February

March

April

May

June

July

August

September

October

November

December

TABLE No. 42.

EAST INDIAN RAILWAY.

(Taken from Statistical Return No. 2.)

shewing the total amount that left the East Indian Railway for Bombay Stations, and the total amount arriving from Bombay Stations.

Half-year ending	Upwards. From Jabalpur towards Bombay	Downwards. To Jabalpur from Bombay.
	Tons.	Tons.
8	77,032	19,259
7	115,619	16,889
... ...	180,146	11,235
6	79,779	7,750
... ...	48,817	9,038
5	18,295	5,897
... ...	19,094	11,230

TABLE No. 43.

EAST INDIAN RAILWAY—JABALPUR LINE.

Half year ending	Tons of goods arriving at Nynee from: Upwards.	Downwards.	Total.	Jabalpur from: Upwards.	Downwards.	Total.	Viâ Nynee from: Upwards.	Downwards.	Total.	Viâ Jabalpur from: Upwards.	Downwards.	Total.
December 1872	...	...	...	...	...	...	...	...	...	...	...	...
June 1873	...	...	...	...	...	...	...	...	...	...	...	...
December „	...	...	...	...	...	...	...	...	...	...	...	...
June 1874	...	...	...	...	...	...	...	...	...	...	...	...
December „	...	...	...	...	...	...	...	...	...	...	...	...
June 1875	678	*Nil.*	678	*Nil.*	5,174	5,174	44,233	*Nil.*	44,233	*Nil.*	19,094	19,094
December „	354	*Nil.*	354	*Nil.*	3,896	3,896	16,206	*Nil.*	16,206	*Nil.*	18,295	18,295
June 1876	311	*Nil.*	11	*Nil.*	8,530	8,530	31,764	*Nil.*	31,764	*Nil.*	48,817	48,817
December „	54	*Nil.*	54	*Nil.*	7,668	7,668	13,230	*Nil.*	13,230	*Nil.*	79,779	79,779
June 1877	72	*Nil.*	72	*Nil.*	18,990	18,990	72	*Nil.*	72	*Nil.*	1,80,146	1,80,146
December „	29	*Nil.*	29	*Nil.*	19,421	19,421	59,825	*Nil.*	59,825	*Nil.*	1,15,610	1,15,610
June 1878	1,082	*Nil.*	1,082	*Nil.*	9,686	9,686	43,725	*Nil.*	43,725	*Nil.*	21,731	21,731
December „	49	*Nil.*	49	*Nil.*	13,212	13,212	16,722	*Nil.*	16,722	*Nil.*	1,11,176	1,11,176

TABLE No. 44.

EAST INDIAN RAILWAY—JABALPUR LINE.

Half-year ending	Tons of goods taken from											
	Nynee.			Jabalpur.			Viâ Jabalpur.			Viâ Nynee.		
	Upwards.	Downwards.	Total.	Upwards.	Downwards.	Total.	Upwards.	Downwards.	Total.	Upwards.	Downwards.	Total.
December 1872	...	...	...	...	...	...	...	...	...	...	...	...
June 1873	...	...	...	...	...	...	...	...	...	...	...	...
December "	...	...	...	...	...	...	...	...	...	...	...	...
June 1874	...	...	...	...	...	...	...	...	...	...	...	...
December "	...	...	...	...	...	...	...	...	...	...	...	...
June 1875	7	*Nil.*	7	*Nil.*	7,346	7,346	*Nil.*	11,236	11,236	23,619	*Nil.*	23,619
December "	16	*Nil.*	16	*Nil.*	1,978	1,978	*Nil.*	5,897	5,897	13,625	*Nil.*	13,625
June 1876	10	*Nil.*	10	*Nil.*	2,302	2,302	*Nil.*	9,038	9,038	34,687	*Nil.*	34,687
December "	6	*Nil.*	6	*Nil.*	1,346	1,346	*Nil.*	7,750	7,750	71,347	*Nil.*	71,347
June 1877	316	*Nil.*	316	*Nil.*	2,213	2,213	*Nil.*	11,235	11,235	172,716	*Nil.*	172,716
December "	626	*Nil.*	626	*Nil.*	11,879	11,879	*Nil.*	16,887	16,887	110,123	*Nil.*	110,123
June 1878	10	*Nil.*	10	*Nil.*	6,488	6,488	*Nil.*	19,258	19,258	78,721	*Nil.*	78,721
December "	109	*Nil.*	109	*Nil.*	1,618	1,618	*Nil.*	12,945	12,945	123,010	*Nil.*	123,010

N. B.—Up is the direction towards the west, thus from Allahabad *up* to Jabalpur

TABLE No. 45.

EAST INDIAN RAILWAY—JABALPUR LINE.

Shewing the weekly earnings during a period of four years, 1875—1878.

YEAR.													
1875.			1876.			1877.				1878.			
Period ending		£	Period ending		£	Period ending		£	Ton-miles.	Period ending		£	Ton-miles.
January ...	9	2,742	January ...	8	1,878	January...	13	2,565	3,124,407	January...	12	7,047	1,693,220
	16	2,571		15	1,594		20	4,823	1,357,755		19	4,120	953,130
	23	2,263		22	2,125		27	5,338	1,646,888		26	4,502	1,054,196
	30	2,829		29	2,062								
						February	3	5,323	1,541,710	February	2	4,736	1,142,407
February ...	6	2,540	February ...	5	2,137		10	5,623	1,635,998		9	3,870	900,628
	13	2,641		12	2,139		17	6,146	1,920,662		16	3,773	869,760
	20	2,844		19	2,397		24	5,250	1,581,572		23	3,200	710,756
	27	2,675		26	2,179								
						March ...	3	5,826	1,771,920	March ...	2	2,789	616,979
March ...	6	2,577	March ...	4	2,457		10	6,364	1,022,586		9	3,108	657,538
	13	2,571		11	2,037		17	4,920	8,484,829		16	3,747	833,702
	20	2,748		18	2,211		24	6,553	2,150,686		23	3,297	723,724
	27	2,732		25	2,150		31	7,092	2,217,810		30	4,120	985,483
April ...	3	2,728	April ...	1	2,338	April ...	7	6,109	1,773,242	April ...	6	5,025	1,207,709
	10	2,527		8	2,578		14	6,118	1,898,997		13	5,897	1,462,768
	17	2,363		15	2,742		21	5,706	1,720,835		20	5,118	1,287,906
	24	2,143		22	2,487		28	5,268	1,498,304		27	6,291	1,546,271
				29	2,488								
May ...	1	1,873				May ...	5	5,426	1,638,252	May ...	4	4,960	1,307,682
	8	2,202	May ...	6	2,261		12	4,844	1,431,675		11	4,407	1,086,967
	15	1,791		13	2,308		19	5,302	1,581,572		18	4,555	1,160,390
	22	2,029		20	2,683		26	5,568	1,635,219		25	4,733	1,108,251
	29	1,905		27	2,340								
						June ...	2	5,479	1,767,571	June ...	1	4,172	924,112
June ...	5	2,089	June ...	3	2,304		9	8,147	2,511,792		8	3,951	971,282
	12	1,659		10	2,313		16	5,348	1,557,690		15	4,128	1,046,171
	19	1,774		17	2,054		23	3,864	1,061,181		22	3,528	728,963
	30	2,286		30	3,706		30	5,908	1,673,567		30	{ 3,685 { 1,725	860,128 392,712
July ...	10	1,022	July ...	8	1,212	July ...	7	3,722	1,065,747	July ...	13	2,759	559,196
	17	853		15	1,049		14	3,779	1,155,590		20	1,630	395,266
	24	934		22	909		21	4,722	1,772,059		27	1,926	912,020
	31	594		29	1,129		28	3,734	1,107,877				
										August ...	3	2,116	506,008
August ...	7	1,152	August ...	5	837	August ...	4	2,795	695,187		10	2,318	553,717
	14	887		12	752		11	5,874	1,841,179		17	1,508	292,308
	21	606		19	859		18	4,637	1,503,084		24	1,074	233,531
	28	666		26	954		25	9,301	3,283,600		31	1,275	250,908
September ...	4	914	September...	2	982	September	1	3,431	1,040,217	September	7	1,592	410,448
	11	906		9	1,010		8	5,461	1,774,629		14	1,688	464,664
	18	912		16	1,488		15	5,607	1,758,073		21	2,444	725,898
	25	957		23	1,416		22	7,357	2,493,076		28	2,761	806,684
				30	1,440		29	5,474	1,669,028				
October ...	2	1,267								October ...	5	3,533	1,126,949
	9	1,614	October ...	7	1,756	October...	6	5,922	1,771,634		12	3,773	950,039
	16	1,646		14	1,950		13	5,819	1,762,125		19	3,462	1,079,203
	23	1,666		21	1,985		20	5,786	1,510,399		26	3,912	1,129,885
	30	1,243		28	2,551		27	4,504	1,309,186				
										November	2	3,384	990,612
November ...	6	1,496	November...	4	3,616	November	3	3,942	1,134,711		9	5,546	1,773,200
	13	1,736		11	6,615		10	3,199	794,735		16	6,224	2,003,714
	20	1,674		18	6,226		17	2,889	657,189		23	7,146	2,301,192
	27	1,732		25	5,633		24	3,465	877,721		30	7,745	2,674,994
December ...	4	1,696	December...	2	5,969	December	1	4,343	1,167,972	December	7	5,721	1,745,320
	11	1,743		9	5,366		8	4,565	1,308,976		14	6,364	1,896,263
	18	1,655		15	4,961		15	4,100	1,176,139		21	7,732	2,440,437
	31	3,527		22	3,872		22	4,004	1,172,037		31	14,117	4,569,505
				31	6,098		31	5,247 } 1,892 }	1,353,222 299,935	}			

TABLE No. 46.

EAST INDIAN RAILWAY—JABALPUR LINE.

	Capital in Pounds expended on open mileage, inclusive of Rolling-stock.	Rupees.			Percentage on column 1.	Mileage.				Lifted.		Ton-mileage.			Foreign Stock on Home Line.			Home Stock on Foreign Lines.		
		Earnings.	Expenditure.	Profits.		Single.	Double.	Total worked.	Sidings.	Tons.	Passengers.	Coaching.	Goods.	Total Coaching and Goods.	Vehicles. Coaching.	Vehicles. Goods.	Locomotives.	Vehicles. Coaching.	Vehicles. Goods.	Locomotives.
	£																			
December 1872 ...	3,569,440	10,70,503	5,11,965	5,58,538	1·5	223¾	...	223¾	21⅓	34,925	118,049	22,179,024	25,300,764	47,479,788	...	...	...	...	...	...
June 1873 ...	3,569,440	11,06,255	5,54,213	5,52,042	1·4	...	...	...	...	75,404	126,838	17,526,390	44,054,894	61,581,284	...	...	...	...	...	...
December „ ...	3,407,683	8,35,955	5,51,816	2,84,139	0·7	...	...	...	...	48,282	113,482	18,921,087	26,029,455	44,950,542	...	...	...	...	...	...
June 1874 ...	3,407,683	17,14,671	6,10,858	11,03,813	3·0	...	...	...	...	125,729	128,621	19,061,071	84,764,013	103,825,084	...	...	...	...	...	...
December „ ...	3,374,698	8,49,369	4,80,936	3,68,433	1·00	...	...	...	21¾	50,144	112,017	18,539,451	35,836,873	54,376,324	...	...	...	...	...	...
June 1875 ...	3,378,720	11,81,039	6,36,753	5,44,286	1·47	...	...	...	...	82,101	142,452	23,932,425	40,582,841	64,515,266	...	...	...	...	...	...
December „ ...	3,376,415	8,37,685	5,34,087	3,03,598	0·82	...	...	...	...	46,570	121,644	22,508,987	25,185,441	47,694,428	...	...	...	...	...	...
June 1876 ...	3,374,257	12,41,142	5,82,923	6,58,219	1·79	...	...	...	...	99,353	156,090	24,735,492	43,395,395	68,130,887	...	...	...	...	...	...
December „ ...	3,374,303	14,33,433	7,26,584	7,06,849	1·92	223·57	...	223·57	21·93	110,216	148,723	25,672,905	59,742,985	85,415,890	...	...	...	...	...	...
June 1877 ...	3,376,317	24,98,655	8,86,337	16,12,318	4·38	...	...	...	...	234,179	183,752	25,355,053	130,607,737	155,962,790	657	4,080	...	187	4,644	...
December „ ...	3,384,164	21,50,312	8,46,359	13,03,953	3·53	...	...	...	22·08	203,973	170,098	24,903,662	105,515,515	130,419,177	934	15,351	...	4,434	5,360	...
June 1878 ...	3,406,991	19,37,565	8,66,541	10,71,024	2·88	...	...	...	22·81	148,609	180,830	26,642,057	81,010,744	107,652,801	543	3,256	17	4,447	7,274	2
December „ ...	3,413,470	17,95,143	7,47,859	10,47,284	2·81	...	...	...	22·63	151,378	153,356	26,892,732	91,237,441	118,130,173	1,360	15,541	34	4,485	4,131	1

TABLE No. 47.

OUDE AND ROHILKUND RAILWAY.

Shewing the food-grain Traffic for the fifteen months, August 1876 to October 1877.

	Tons for Export to			Tons for Distressed Districts.			Total.	
	Howrah.	Bombay.	Total.	G. I. P. Ry. below Callia.	Madras Railway.	Total.	Ton-mileage on the O. & R. Ry.	Tons.
1876.								
August	468	...	468	...	...	...	26,982	
September	268	...	268	...	...	...	20,608	
October	2,012	29	2,041	10	...	10	187,130	
November	800	869	1,669	298	...	98	296,769	
December	1,355	927	2,282	221	...	221	326,515	
Total ...	4,903	1,825	6,728	529		529	858,004	
1877.								
January	1,837	791	2,628	285	...	285	496,899	
February	271	2,085	2,356	396	...	396	332,659	
March	298	1,977	2,275	809	37	846	222,312	
April	2,834	1,151	3,985	113	128	241	369,384	
May	9,400	2,948	12,348	67	310	377	2,133,981	
June	14,148	4,160	18,308	18	123	141	4,004,455	
Total ...	28,788	13,112	41,900	1,688	598	2,286	7,559,690	
July	6,969	946	7,915	79	...	79	1,863,486	
August	2,748	7,719	10,467	2,686	395	3,081	1,783,458	
September	140	1,909	2,049	2,984	301	3,285	707,346	
October	...	796	796	3,005	778	3,783	518,288	
Total ...	9,857	11,370	21,227	8,754	1,474	10,228	4,872,578	
GRAND TOTAL ...	43,548	26,307	69,855	10,971	2,072	13,043	13,290,272	

TABLE No. 48.

OUDE AND ROHILKUND RAILWAY.

Shewing the efflux from, and influx of goods into, the Oude and Rohilkund Railway through its junctions, Benares, Cawnpore and Allygurh with the East India Railway.

Half-Year Ending	Tons of Goods Forwarded to Foreign Lines Via				Tons of Goods Received from Foreign Lines Via			
	Benares.	Cawnpore.	Allygurh.	Total.	Benares.	Cawnpore.	Allygurh.	Total.
December 1874 ...	819	1,224	14,512	16,556	2,478	2,255	12,462	17,196
June 1875 ...	2,348	2,772	29,866	34,986	4,122	2,302	20,196	26,620
December „ ...	2,168	2,932	20,505	25,605	1,262	6,850	12,642	20,756
June 1876 ...	5,446	22,833	48,482	76,762	2,299	7,040	17,454	26,793
December „ ...	5,376	16,310	20,935	42,622	1,354	7,221	15,038	23,614
June 1877 ...	34,395	52,792	39,640	126,827	1,843	7,760	19,598	29,202
December „ ...	8,146	32,989	16,026	57,162	5,641	34,475	50,380	87,496
June 1878 ...	18,171	25,433	41,527	85,131	21,298	20,677	68,431	110,406
December „ ...	5,156	30,007	26,538	61,707	2,402	7,111	17,179	26,694
Total Tons ..	82,025	187,295	258,032	527,352	42,701	92,693	2,33,382	368,777

TABLE No. 49.

OUDE AND ROHILKUND RAILWAY.

Shewing the weekly earnings from Merchandise Traffic during a period of four years, 1875-78.

YEAR.													
1875.			1876.			1877.				1878.			
Period ending		£	Period ending		£	Period ending		Ton-miles.	£	Period ending		Ton-miles.	£
January ...	9	8,304	January ...	8	3,694	January ...	6		3,528	January ...	5	1,069,651	3,576
	16	2,944		15	3,282		13		3,442		12	1,456,310	4,905
	23	2,871		22	3,576		20		3,571		19	1,352,209	4,631
	30	2,631		29	3,081		27		3,920		26	1,732,231	5,700
February ...	6	3,272	February ...	5	3,833	February ...	3		3,654	February ...	2	1,802,565	5,922
	13	3,094		12	3,918		10		2,983		9	1,707,877	5,767
	20	2,660		19	3,467		17		3,614		16	1,736,256	5,801
	27	2,860		26	3,627		24		2,983		23	1,942,361	6,446
March ...	6	3,163	March ...	4	3,436	March ...	3		2,582	March ...	2	1,917,875	6,492
	13	3,412		11	3,642		10		4,183		9	1,457,127	4,922
	20	2,827		18	3,061		17		3,014		16	1,063,488	3,603
	27	2,474		25	3,558		24		3,455		23	962,637	3,455
April ...	3	2,559	April ...	1	2,704		31		3,751		30	1,052,115	3,584
	10	1,905		8	3,577	April ...	7		3,464	April ...	6	1,427,395	4,263
	17	2,410		15	3,543		14		3,541		13	1,353,041	4,392
	24	3,321		22	3,751		21		4,634		20	1,754,715	5,156
May ...	1	3,043		29	3,423		28		5,485		27	2,082,034	6,490
	8	3,082	May ...	6	4,154	May ...	5		6,406	May ...	4	1,964,497	6,179
	15	3,766		13	3,667		12		7,424		11	2,500,299	7,791
	22	3,439		20	3,892		19		6,348		18	2,799,304	8,389
	29	3,207		27	4,024		26		4,825		25	2,564,817	7,091
June ...	5	3,530	June ...	3	4,028	June ...	2		5,317	June ...	1	2,418,590	7,194
	12	3,016		10	3,915		9		4,832		8	2,300,045 418,431	6,492 334
	19	2,345		17	3,282		16		3,801		15	1,905,309	5,749
	26	2,099		24	3,115		23		5,727		22	1,910,365	5,203
	30	946		31	2,791		30		6,020		30	1,745,935	4,052
July ...	10	3,127	July ...	8	2,961	July ...	7		2,761	July ...	6	1,360,734	3,857
	17	2,009		15	2,512		14		3,667		13	1,095,289	3,065
	24	2,449		22	1,898		21		3,631		20	1,302,989	3,861
	31	1,999		29	1,552		28		3,485		27	1,417,580	4,324
August ...	7	1,233	August ...			August ...	4		3,678	August ...	3	1,533,617	4,543
	14	1,213					11		3,022		10	1,147,042	3,443
	21	1,351					18		2,879		17	899,082	27,989
	28	1,429					25		3,181		24	785,781	2,365
September ...	4	1,605	September ...	2	1 838	September ...	1		2,299		31	618,412	1,990
	11	1,690		9	2,008		8		25,477	September ...	7	650,858	2,23[illegible]
	18	1,520		16	2,269		15		3,680		14	680,724	2,157
	25	1,387		23	2,002		22		3,899		21	874,016	2,690
October ...	2	1,408		30	2,144		29		4,233		28	974,166	3,076
	9	1,709	October ...		2,623	October ...	6	1,113,452	4,187	October ...	5	908,291	2,88[illegible]
	16	1,714		14	2,428		13	946,988	3,244		12	970,053	3,34[illegible]
	23	2,357		21	2,261		20	1,236,752	4,385		19	1,341,312	4,[illegible]53
	30	2,179		28	2,875		27	1,654,342	5,546		26	1,165,153	3,642
November ...	6	2,116	November ...	4	2,848	November ...	3	1,350,735	5,268	November ...	2	1,478,421	4,516
	13	2,269		11	3,517		10	1,096,979	3,924		9	1,471,785	4,638
	20	2,451		18	3,601		17	1,206,252	4,469		16	1,171,769	4,573
	27	2,675		25	4,091		24	1,445,238	4,764		23	1,604,157	5,245
December ...	4	2,957	December ...	2	4,200	December ...	1	1,522,438	5,495		30	1,670,031	5,28[illegible]
	11	3,052		9	4,638		8	2,014,912	5,273	December ...	7	1,543,660	5,042
	18	3,314		16	3,915		15	1,333,696	4,348		14	1,727,715	5,847
	25	3,183		23	4,345		22	1,793,708	4,885		21	1,804.922	5,007
	31	2,823		31	4,347		31	2,150,241	6,690		31	2,721 020	8,87[illegible]

TABLE No. 50.

OUDE AND ROHILKUND RAILWAY.

Half-Year Ending	Capital in Pounds Sterling expended on open mileage inclusive of Rolling Stock	Rupees.			Percentage on column 1.	Mileage.				Lifted.		Ton Mileage.			Foreign Stock on Home Line. Vehicles.			Home Stock on Foreign Line. Vehicles.		
		Earnings.	Expenditure.	Profits.		Single.	Double	Total worked.	Siding.	Tons.	Passenger.	Coaching.	Goods.	Total coaching and Goods.	Coaching.	Goods.	Locomotive.	Coaching.	Goods.	Locomotive.
December 1872	1,967,683	2,42,918	1,84,688	58,230	0·27	294	...	294	...	34,600	366,903	8,316,252	6,588,794	14,905,046	...	...	...	...	...	...
June 1873	2,408,763	5,18,161	3,34,835	1,83,326	0·70	395	...	395	...	54,596	588,707	16,548,457	13,091,176	29,639,633	...	...	...	...	...	...
December 1873	3,022,368	6,05,739	4,84,622	1,21,117	0·37	455	...	455	17·6	64,224	724,458	21,390,727	18,180,104	39,570,831	...	...	...	...	...	...
June 1874	4,024,228	9,52,735	5,63,343	3,89,392	0·89	540	...	540	26·0	116,011	960,150	29,346,381	29,469,357	58,815,738	...	...	...	...	...	...
December 1874	4,646,738	10,51,285	7,27,483	3,23,802	0·64	539·8	...	539·8	44·0	92,992	1,034,926	35,729,615	36,840,821	72,570,436	...	...	...	...	...	...
June 1875	4,763,931	14,98,437	7,48,528	7,49,909	1·57	539·8	...	539·8	46·39	170,835	1,244,697	47,543,931	59,860,646	107,404,577	...	...	...	...	...	...
December 1875	5,070,505	12,52,807	8,94,217	3,58,590	0·70	544·5	...	544·5	49·60	128,627	1,137,540	45,816,769	49,828,904	95,645,673	...	...	...	...	...	...
June 1876	5,145,297	18,33,634	11,81,568	6,52,066	1·27	544·2	...	544·2	53·20	260,462	1,326,784	52,695,724	81,873,001	134,568,725	...	...	...	...	...	...
December 1876	5,296,623	15,77,788	9,99,452	5,78,336	1·09	a544·2	...	a544·2	55·70	191,968	1,229,762	54,436,736	67,542,087	121,978,823	...	...	...	...	...	...
June 1877	5,374,901	23,37,794	11,10,436	12,27,358	2·28	a543·7	...	a543·7	60·86	305,602	1,523,229	55,981,561	101,381,973	157,363,534	123	710	...	77	1,623	...
December 1877	5,423,961	20,04,011	11,63,769	8,40,242	1·55	a543·7	...	a543·7	62·50	328,465	1,230,544	50,979,689	100,577,604	151,557,293	59	3,832	...	136	1,496	...
June 1878	5,458,080	24,98,785	12,95,913	12,02,872	2·20	a543·7	...	a543·7	63·20	409,489	1,291,435	54,097,401	132,094,450	186,191,851	130	3,859	...	83	2,018	...
December 1878	5,508,228	21,23,251	12,10,653	9,12,598	1·66	b546·8	...	546·8	66·05	260,485	1,303,112	54,788,681	97,870,493	154,659,174	103	1,622	...	205	1,851	...

a.—Excludes 4 miles Narora Branch. b.—Includes 3·15 miles Rajghat Extension.

TABLE No. 51.

EASTERN BENGAL RAILWAY.

Shewing the Food-grain Traffic during the fifteen months, August 1876 to October 1877.

	FOR STATIONS ON THE RAILWAY TO					
	CALCUTTA.		CHITPORE.		TOTAL.	
	Tons.	Ton-miles.	Tons.	Ton-miles.	Tons.	Ton-miles.
1876.						
August	141	16,721	404	52,814	545	69,5[illegible]
September	83	7,540	142	16,930	225	24,47[illegible]
October	135	16,104	323	41,270	458	57,3[illegible]
November	1,083	131,098	1,452	186,810	2,535	317,0[illegible]
December	3,235	389,358	3,912	562,338	7,147	951,6[illegible]
TOTAL ...	4,677	560,821	6,233	860,162	10,910	1,420,[illegible]
1877.						
January	4,425	556,067	6,099	901,598	10,524	1,457,6[illegible]
February	3,791	438,924	4,921	734,480	8,712	1,173,4[illegible]
March	3,022	311,639	2,747	397,021	5,769	709,2[illegible]
April	4,620	476,817	2,916	395,456	7,536	872,27[illegible]
May	6,126	661,087	4,679	646,284	10,805	1,307,[illegible]
June	1,540	207,138	8,438	1,128,143	9,978	1,335,[illegible]
TOTAL ...	23,524	2,651,672	29,800	4,203,582	53,324	6,855,2[illegible]
July	6,433	782,172	11,521	1,627,504	17,954	2,409,0[illegible]
August	7,085	1,046,122	9,701	1,355,662	16,786	2,401,7[illegible]
September	4,020	589,219	6,298	818,273	10,318	1,407,4[illegible]
October	1,899	278,472	4,009	530,534	5,908	800,[illegible]
TOTAL ...	19,437	2,695,985	31,529	4,331,073	50,966	7,027,[illegible]
GRAND TOTAL ...	47,638	5,908,478	67,562	6,395,717	115,200	15,304,1[illegible]

TABLE No. 52.

EASTERN BENGAL RAILWAY.

Shewing the weekly earnings during a period of four years 1875-78.

YEAR.

1875.

Period ending.		Rupees.
January ...	2	11,419
	9	31,857
	16	25,870
	23	32,843
	30	26,556
	31	471
February ...	6	33,075
	13	31,934
	20	29,166
	27	28,931
	28	3,016
March ...	6	27,365
	13	25,781
	20	24,338
	27	28,219
	31	23,919
April ...	3	15,990
	10	35,835
	17	25,645
	24	37,866
	30	27,011
May ...	1	3,823
	8	33,796
	15	32,568
	22	17,966
	29	25,535
	31	1,642
June ...	5	12,661
	12	16,047
	19	16,981
	26	26,636
	30	12,480
July ...	3	12,954
	10	20,487
	17	18,357
	24	33,081
	31	17,298
August ...	7	22,495
	14	34,709
	21	28,299
	28	44,140
	31	18,989
September ...	4	31,545
	11	53,449
	18	63,162
	25	66,573
	30	35,438
October ...	2	18,320
	9	31,142
	16	34,098
	23	36,898
	30	37,180
	31	4,578
November ...	6	21,252
	13	34,961
	20	39,594
	27	42,082
	30	13,513
December ...	4	22,856
	11	27,419
	1	31,473
	2	30,027
	31	19,652

1876.

Period ending.		Rupees.
January ...	1	4,511
	8	36,551
	15	28,326
	22	27,374
	29	29,720
	31	6,220
February ...	5	20,752
	12	27,014
	19	26,456
	26	26,494
	29	13,009
March ...	4	14,802
	11	29,835
	18	31,574
	25	32,155
	31	27,848
April ...	1	5,249
	8	28,183
	15	29,769
	22	28,091
	29	23,881
	30	4,963
May ...	6	21,000
	13	32,348
	20	30,464
	27	23,041
	31	18,888
June ...	3	12,160
	10	20,936
	17	24,416
	24	
	30	27,804
July ...	1	3,906
	8	20,839
	15	35,178
	22	28,476
	29	46,682
	31	6,484
August ...	5	24,390
	12	54,019
	19	72,779
	26	79,215
	31	67,924
September...	2	21,315
	9	58,639
	16	68,794
	23	72,525
	30	59,479
October ...	7	60,316
	14	58,511
	21	45,639
	28	49,822
	31	22,399
November...	4	27,037
	11	40,031
	18	45,720
	25	38,772
	30	30,197
December...	2	12,074
	9	41,118
	16	42,348
	23	38,255
	30	40,162
	31	11,239

1877.

Period ending.		Ton Miles.	Rupees.
January ...	6	...	30,277
	13	...	·39,282
	20	...	38,945
	27	...	40,500
	31	...	18,583
February ...	3	...	17,274
	10	...	30,542
	17	...	35,919
	24	...	45,134
	28	...	20,095
March ...	3	...	17,411
	10	...	31,122
	17	...	34,449
	24	...	37,380
	31	...	41,714
April ...	7	...	32,278
	14	...	42,533
	21	...	47,685
	28	...	51,426
	30	...	13,567
May ...	5	...	41,695
	12	...	48,589
	19	...	44,471
	26	...	43,665
	31	...	34,525
June ...	2	...	14,208
	9	...	49,081
	16	...	41,841
	23	...	41,811
	30	...	45,111
July ...	7	...	38,592
	14	...	58,255
	21	...	60,522
	28	...	66,294
	31	...	29,965
August ...	4	...	41,715
	11	...	74,730
	18	...	97,466
	25	...	77,871
	6	...	86,476
September...	1	300,204	18,508
	8	1,488,601	96,369
	15	1,575,920	1,01,777
	22	1,605,063	1,00,402
	29	1,472,381	93,828
	30	299,995	17,187
October ...	6	1,351,903	86,151
	13	1,757,345	1,14,741
	20	1,331,808	96,770
	27	1,127,974	76,680
	31	668,599	52,383
November...	3	410,324	29,190
	10	637,206	49,002
	17	762,874	48,510
	24	893,232	51,826
	30	832,816	46,509
December ...	1	129,144	7,433
	8	852,484	51,358
	15	771,593	44,680
	22	735,036	43,079
	29	677,869	37,308
	31	336,090	18,608

1878.

Period ending.		Ton Miles.	Rupees.
January ...	5	474,345	26,740
	12	885,580	45,395
	19	852,091	42,427
	26	1,277,251	64,562
	31	753,607	36,172
February ...	2	273,917	18,081
	9	1,072,817	58,075
	16	974,477	48,673
	23	982,742	50,409
	28	690,106	31,631
March ...	2	256,353	14,585
	9	898,488	45,962
	16	916,369	49,910
	23	864,851	45,199
	30	789,888	38,640
	31	56,390	3,105
April ...	6	606,741	28,681
	13	845,432	43,670
	20	634,068	31,698
	27	797,304	45,985
	30	296,798	13,616
May ...	4	508,709	24,994
	11	706,979	36,531
	18	699,017	36,248
	25	704,278	36,653
	31	508,514	25,853
June ...	1	96,571	5,270
	8	543,959	27,612
	15	595,235	32,960
	22	573,813	30,940
	29	660,240	34,282
	30	145,465	10,703
July ...	6	652,227	34,231
	13	567,853	31,699
	20	822,162	46,293
	27	529,216	32,321
	31	243,418	18,327
August ...	3	442,373	32,962
	10	850,277	65,229
	17	942,408	77,839
	24	952,783	77,754
	31	827,111	66,263
September...	7	1,140,244	92,564
	14	1,080,795	93,281
	21	1,223,788	1,03 647
	28	978,80[illegible]	85,552
	31	458,302	32,926
October ...	5	693,367	61,148
	12	794,736	60,852
	19	830,674	68,704
	26	651,869	55,206
	31	476,165	37,108
November...	2	235,139	16,985
	9	547,634	40,768
	16	557,937	35,065
	23	659,354	40,623
	30	662,103	38,543
December ...	7	871,687	53,109
	14	739,731	41,843
	21	598,087	34,586
	28	506,314	29,132
	31	392,029	29,082

TABLE No. 53.

EASTERN BENGAL RAILWAY.

Half year ending.	Capital in Pounds sterling expended on open mileage inclusive of Rolling-Stock.	Rupees.			Percentage on column 1.	Mileage.				Lifted.		Ton-mileage.			Foreign Stock in Home Lines. Vehicles.			Home Stock in Foreign Lines. Vehicles.		
		Earnings.	Expenditure.	Profit.		Single.	Double.	Total.	Sidings.	Tons.	Passenger.	Coaching.	Goods.	Total Coaching and Goods.	Coaching.	Goods.	Locomotive.	Coaching.	Goods.	Locomotive.
December 1872	2,740,018	18,26,221	1,123,888	702,333	2·35	156·5	...	156·5	36·5	120,049	736,169	19,988,445	50,733,635	70,722,080	...	...	...	...	...	...
June 1873	2,740,018	16,26,648	850,661	775,987	2·60	156·5	...	156·5	36·75	132,166	844,860	24,598,654	43,826,467	68,425,121	...	...	...	...	...	...
December 1873	2,799,235	18,08,262	905,255	903,007	2·96	156·4	...	156·4	36·29	129,639	788,709	22,234,801	49,400,495	71,635,296	...	...	...	...	...	...
June 1874	2,889,004	18,50,727	973,258	877,469	2·78	158·2	...	158·2	36·29	210,175	956,790	22,197,725	58,953,696	81,151,421	...	...	...	...	...	...
December 1874	2,971,098*a*	19,37,299	995,118	942,181	2·91	158·2	...	158·2	40·40	135,918	913,690	23,078,865	52,573,980	75,652,845	...	...	...	...	...	...
June 1875	2,998,380	15,05,550	959,067	546,483	1·71	158·2	...	158·2	39·5	121,217	940,085	24,664,720	38,476,230	63,140,950	...	...	...	...	...	...
December 1875	2,997,105	17,21,576	1,114,548	607,028	1·86	157·7	...	157·7	38·6	124,200	871,471	23,296,588	45,297,544	68,594,132	...	...	...	...	...	...
June 1876	3,004,671	15,20,235	861,023	659,212	2·01	158·2	...	158·2	40·1	124,694	967,553	24,719,937	41,530,560	66,250,497	...	...	...	...	...	...
December 1876	3,024,466	21,19,711	820,629	1,299,082	3·94	158·2	...	158·2	39·12	179,519	874,514	22,769,154	64,627,257	87,396,411	...	...	...	...	...	...
June 1877	3,031,690	19,21,604	963,520	958,084	2·90	158·8	...	158·8	38·10	204,468	986,458	25,322,318	67,761,940	93,084,258	...	2	...	...	...	2
December 1877	3,027,280	29,05,429	1,018,991	1,886,438	5·71	158·9	...	158·9	39·9	249,054	976,473	25,019,144	92,216,105	117,235,249	...	48	...	...	...	2
June 1878	3,057,630	21,24,442	1,042,634	1,081,788	3·24	158·7	...	158·7	40·6	188,309	1,133,750	30,452,263	55,892,612	86,344,875	...	...	...	...	...	...
December 1878	30,99,416	25,21,399	988,115	1,533,284	4·53	171·7*b*	...	171·7*b*	43·9*b*	168,876	1,048,178	30,163,076	56,468,342	86,631,418	...	...	...	...	...	...

TABLE No. 54.

HOLKAR STATE RAILWAY.

Shewing the Food-grain Traffic during the fifteen months, August 1876 to September 1877.

	Tons booked to						Total.	
	Places between Khandesh and Bombay.	Bombay.	Puna up to Sholapur.	Sholapur to Raichor.	Raichor to Bellary.	South of Goondacul Junction.	Tons.	Ton-mileage.
1876.								
ust	...	3	...	...	...	...	3	86
ember	...	9	8	...	...	...	17	588
ber	69	6	51	...	...	...	126	4,245
ember	182	49	33	...	...	...	264	9,188
mber	71	226	86	1	...	...	284	12,828
Total ...	322	293	178	1	...	...	694	26,935
1877.								
uary	11	430	176	5	...	...	622	23,722
ruary	6	497	54	...	49	...	606	27,243
ch	96	210	146	...	126	...	578	24,203
il	61	692	101	...	18	...	872	33,268
... ...	291	974	599	62	64	...	1,990	86,296
... ...	60	288	721	61	331	30	1,491	54,842
Total ...	525	3,091	1,797	128	588	30	6,159	249,574
... ...	22	630	2,191	263	907	...	4,013	162,517
ust	48	512	2,461	115	213	...	3,349	162,811
ember	504	1,480	1,156	54	197	...	3,391	151,029
ber	231	554	60	33	...	...	878	29,702
Total ...	805	3,176	5,868	465	1,317	...	11,631	506,059
GRAND TOTAL ...	1,652	6,560	7,843	594	1,905	30	18,484	782,568

TABE No. 55.

TONS LIFTED (GOODS.)

Name of Railway.	HALF-YEAR ENDING.													
	June 1872.	December 1872.	June 1873.	December 1873.	June 1874.	December 1874.	June 1875.	December 1875.	June 1876.	December 1876.	June 1877.	December 1877.	June 1878.	December 1878.
E. I. Railway. Main Line	645,861	495,208	731,780	749,907	1,397,989	746,558	869,511	680,442	984,164	934,065	1,286,861	1,283,290	1,390,166	1,056,563
Jabalpur Line ...	69,031	34,925	75,404	48,282	126,850	50,144	82,101	46,570	99,353	110,216	234,179	203,973	148,609	151,378
Eastern Bengal ..	104,701	120,049	132,166	129,639	210,175	135,918	121,217	124,200	124,694	179,519	204,468	249,054	188,309	168,876
Great Indian Peninsula ...	535,561	244,805	418,370	275,563	520,722	331,613	566,057	379,375	644,320	592,421	983,703	765,135	911,250	531,869
Madras Railway ...	181,647	186,212	210,735	196,003	175,224	197,582	199,567	......	248,128	366,910	508,877	481,789	......	...
Sind, Panjab and Delhi (Panjab Section). ...	......	76,966	119,093	137,210	255,977	143,548	126,644	100,182	173,140	132,793	244,009	281,146	320,188	254,199
Great Southern of India ...	52,965	44,426	63,617	51,222	56,064	63,874	60,590	60,655	81,895	117,704	174,633	212,419	......	...
Oude and Rohilkund ...	38,692	34,600	54,596	64,224	116,011	92,992	170,835	128,627	260,462	191,968	305,602	......	409,489	260,485
Bombay Baroda & C. India	......	95,646	267,909	181,599	320,867	93,414	268,185	118,765	305,537	151,924	343,641	194,368	338,055	191,492

TABLE No. 56.

INDIAN INSTITUTE * OXFORD

GROSS GOODS TON-MILEAGE.

Table M-1, Item 19 of the Review of the Revenue Account.

Name of Railway.	June 1872.	December 1872	June 1873.	December 1873.	June 1874.	December 1874.	June 1875.	December 1875.	June 1876.	December 1876.	June 1877.	December 1877.	June 1878.	December 1878.
E. I. Railway. Main Line	632,908,929	496,036,691	700,406,875	696,692,169	1,252,079,177	676,317,193	622,206,133	509,059,784	757,055,619	737,049,326	1,020,025,446	976,347,661	947,215,664	746,878,021
Jabalpur Line ...	42,818,548	25,300,764	44,054,894	26,029,455	84,764,013	35,836,873	40,582,841	25,185,441	43,395,395	59,742,985	130,607,737	105,515,515	81,010,744	91,237,441
Eastern Bengal ...	41,869,142	50,733,635	43,826,467	49,400,495	58,953,696	52,573,980	38,476,230	45,297,544	41,530,560	64,627,257	67,761,940	92,216,105	55,892,612	56,468,342
Great Indian Peninsula ...	190,318,225	207,338,635	351,180,522	213,880,154	436,935,432	228.227,270	435,507,993	298,299,540	615,689,269	540,369,119	962,026,249	819,821,332	807,925,727	543,898,429
Madras Railway ...	111,096,599	110,217,252	137,922,504	114,290,309	107,261,283	114,902,871	131,905,984	131,880,774	117,405,128	178,192,082	246,361,583	248,140,924	139,108,772	......
Sind, Panjab and Delhi (Panjab Section) ...	66,531,119	68,016,503	83,788,684	109,747,066	145,889,529	78,752,761	79,979,763	57,053,659	92,219,044	71.772,211	100,280,501	152,262,568	163,641,616	125,955,072
Great Southern of India ...	12,850,445	13,025,544	23,974,144	13,179,534	14,705,540	15,081,227	15,272,161	16,611,070	20,155,579	26,522,259	48,658,863	58,830,725	44,461,535	......
Oude and Rohilkund	4,327,343	6,588,794	13,091,176	18,180,104	29,469,357	36,840,821	59,860,646	49,828,904	81,873,001	67,542,087	101,381,973	100,577,604	132,094,450	97,870,493
[illegible]	[illegible]	[illegible]	[illegible]	50,580,981	120,250,121	40,617,300	[illegible]	58,658,307	148,869,866	70,313,387	159,802,946	95,710,689	148,723,047	94,130,464